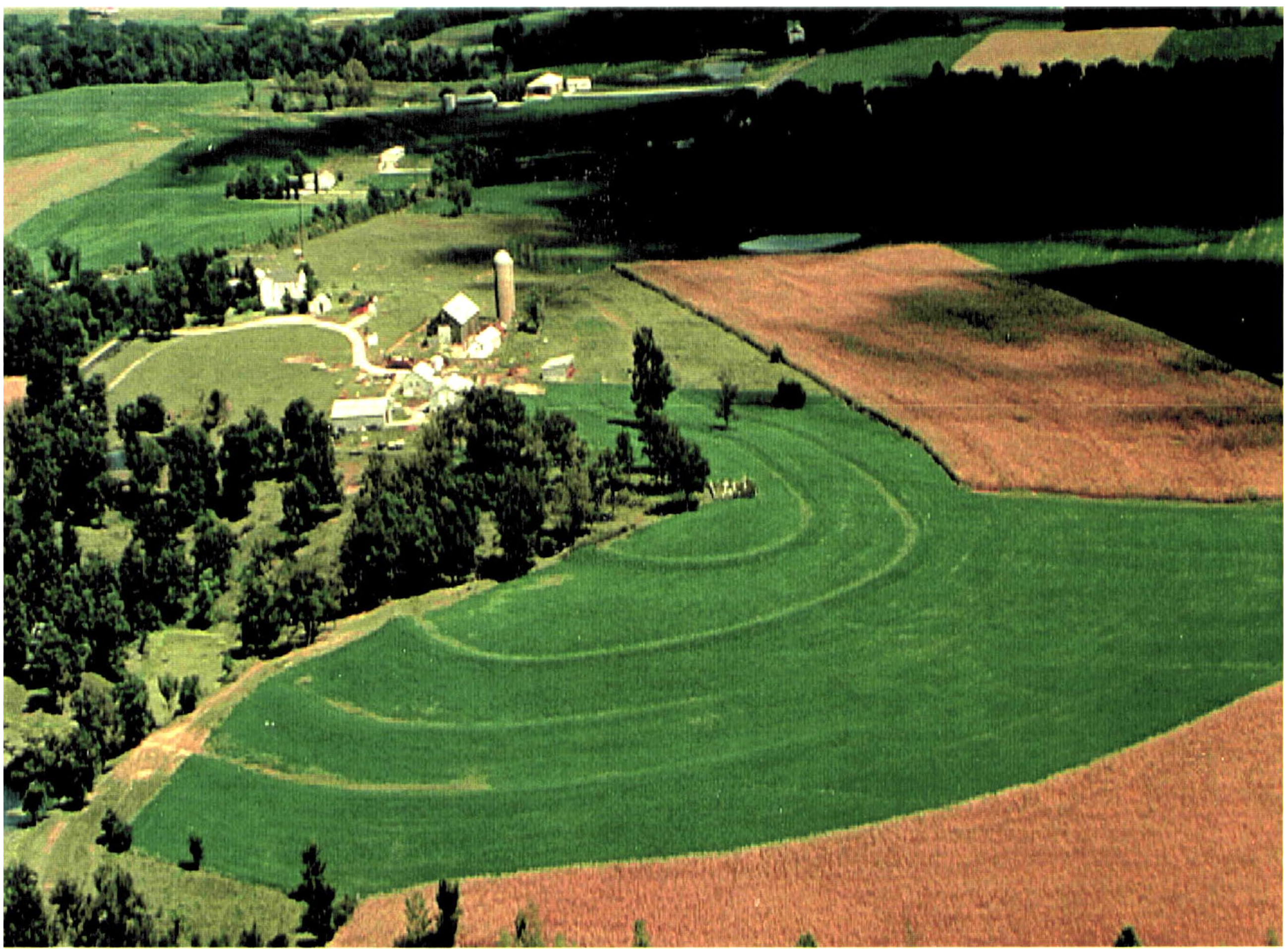
United States
Department of
Agriculture

Natural
Resources
Conservation
Service

In cooperation with
Illinois Agricultural Experiment Station

Soil Survey of St. Clair County, Illinois

Part I

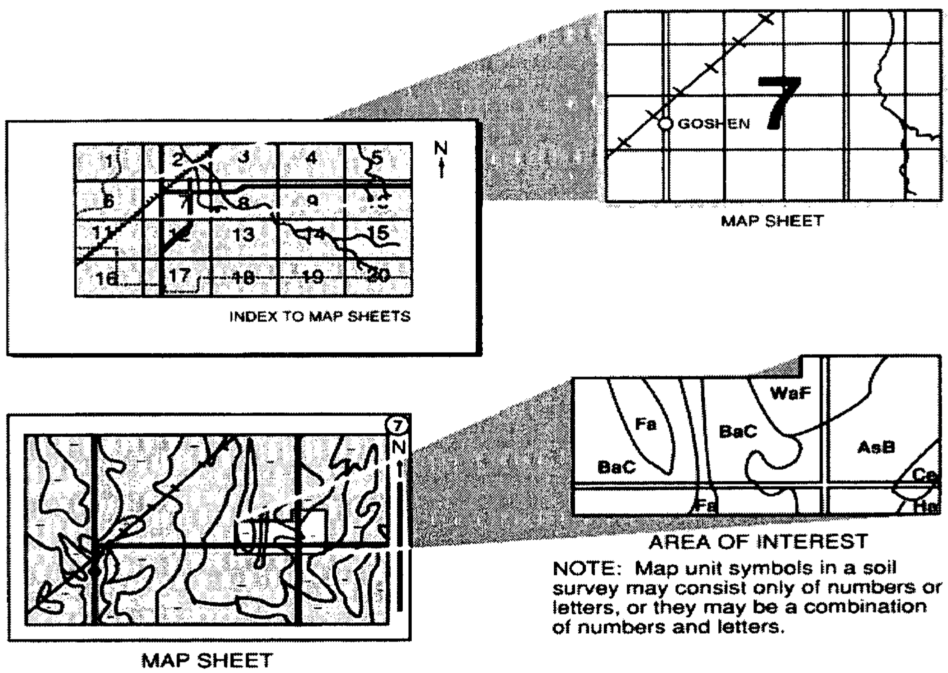


How To Use This Soil Survey

This survey is divided into three parts. Part I includes general information about the survey area, descriptions of the detailed soil map units and soil series in the area, and a description of how the soils formed. Part II describes the use and management of the soils and the major soil properties. This part may be updated as further information about soil management becomes available. Part III includes the maps.

Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.



To find information about your area of interest, locate that area on the **Index to Map Sheets**, which precedes the soil maps. Note the number of the map sheet, and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Index to Map Units**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Summary of Tables** shows which table has data on a specific land use for each detailed soil map unit. See Contents for sections of this publication that may address your specific needs.

The **Summary of Tables** shows which table has data on a specific land use for each detailed soil map unit. See **Contents** for sections of this publication that may address your specific needs.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1995. Soil names and descriptions were approved in 1997. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1995. This survey was made cooperatively by the Natural Resources Conservation Service and the Illinois Agricultural Experiment Station. It is part of the technical assistance furnished to the St. Clair County Soil and Water Conservation District. Funding was provided by the St. Clair County Board and the Illinois Department of Agriculture.

Cover: A series of terraces conserve the soil on a hillside in St. Clair County.

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Foreword

This soil survey contains information that can be used in land-planning programs in St. Clair County. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

William J. Gradle
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Soil Survey of St. Clair County, Illinois

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United States Department of Agriculture, Natural Resources Conservation Service,
in cooperation with
the Illinois Agricultural Experiment Station

St. Clair County is in the southwestern part of Illinois*(fig. 1)*. It has an area of 431,330 acres, or about 673 square miles. It is bordered on the north by Madison County, on the east by Clinton and Washington Counties, on the south by Monroe and Randolph Counties, and on the west by the Mississippi River. St. Clair County, the first county in Illinois, was established in 1790. Its present boundaries were set in 1825. In 1990, the population of the county was 262,850 *(18)*. Belleville, the county seat and largest city in the county, had a population of 42,200.

This soil survey updates the surveys of St. Clair County published in 1938 (11) and 1978 *(19)*.

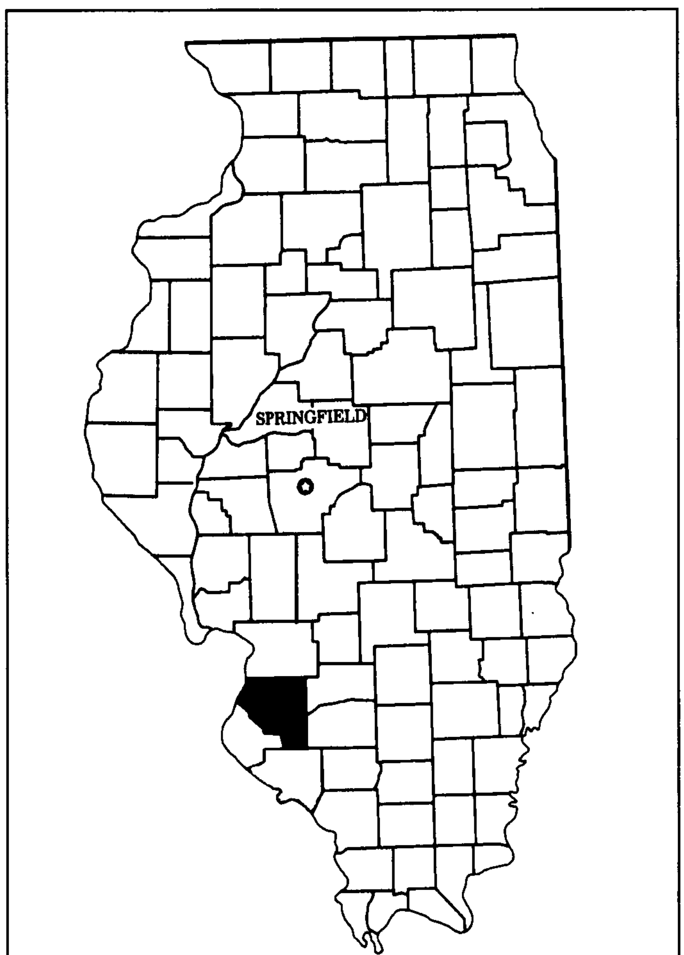

Figure 1. —Location of St. Clair County in Illinois.

General Nature of the Survey Area

This section provides general information about St. Clair County. It describes physiography, relief, and drainage; natural resources; transportation facilities; industry; agriculture; and climate.

Physiography, Relief, and Drainage

Most soils in St. Clair County are on uplands. The uplands consist mainly of a glacial till plain that is covered by loess. The thickness of the loess ranges from about 100 feet in the western part of the county to less than 10 feet in the eastern and southeastern parts. Areas of alluvial (bottom) lands are extensive; they are along the Mississippi and Kaskaskia Rivers and Silver and Richland Creeks. Elevation ranges from about 370 feet above mean sea level where the Kaskaskia River leaves the county to about 700 feet on the uplands east

of Dupo. The northwestern third of the county drains into the Mississippi River. The rest drains into the Kaskaskia River by way of Silver and Richland Creeks and other smaller tributaries.

Natural Resources

Sources of water in the county are variable. The American Bottoms, a large part of the Mississippi River flood plain in the East St. Louis area, have an excellent source of underground water. The glacial outwash plains and alluvial areas adjacent to the Kaskaskia River have a fair to good source of underground water. In many areas of the uplands, water stored in ponds is used to supply livestock needs.

Transportation Facilities

Transportation is well developed in the county. Interstate Highways 55, 64, 70, and 255 converge in East St. Louis. The rest of the county is served by several U.S. and State highways and is fully accessible by blacktop and gravel roads. East St. Louis and Dupo have large railroad centers. The county is served by bargelines. It also has air facilities for general air service and the large St. Louis airport is nearby. Also located in St. Clair County is Scott Air Force Base, headquarters for the Military Airlift Command.

Industry

St. Clair County, as part of the St. Louis metropolitan area, has a variety of large industries, such as transportation complexes; manufacturers of chemicals, clothing, and shoes; processors of petroleum, steel, aluminum, and food products; and livestock marketing.

Agriculture

Farming is a major enterprise in St. Clair County. Corn, soybeans, and wheat are the main crops. Specialty crops such as apples, peaches, and vegetables, are also grown. A small percentage of the county is woodland.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Belleville in the period 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 32.5 degrees F and the average daily minimum is 23.2 degrees. The lowest temperature on record, which occurred at Belleville on January 17, 1977, is -27 degrees. In summer, the average temperature is 75.2 degrees and the average daily maximum temperature is 87.2 degrees. The highest recorded temperature, which occurred at Belleville on July 14, 1954, is 110 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is 38.13 inches. Of this, about 21.22 inches, or about 56 percent, usually falls in April through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 8.15 inches at Belleville on June 15, 1957. Thunderstorms occur on about 46 days each year, and most occur between April and August.

The average seasonal snowfall is 17.4 inches. The greatest snow depth at any one time during the period of record was 19 inches recorded on February 12, 1982. On an average, 17 days per year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year. The heaviest 1-day snowfall on record was 14.8 inches recorded on January 31, 1982.

The average relative humidity in midafternoon is about 59 percent. Humidity is higher at night, and the average at dawn is about 83 percent. The sun shines 67 percent of the time in summer and 49 percent in winter. The prevailing wind is from the south in the summer and from the west and northwest in the winter and spring. Average windspeed is highest, 12 miles per hour, in March.

Tornadoes and severe thunderstorms strike occasionally. They are of local extent and of short duration and cause only sparse damage in narrow areas. Hailstorms sometimes occur during the warmer periods.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the degree of erosion; the general pattern of drainage; and the kinds of crops and native plants. To study the soil profile, which is the sequence of natural layers, or horizons, soil scientists examine the soil with the aid of a soil probe or spade. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material

is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind or segment of the landscape. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landscape, soil scientists develop a concept, or model, of how the soils were formed.

Individual soils on the landscape commonly merge into one another as their characteristics gradually change. To construct an accurate map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Fieldwork in St. Clair County consisted primarily of soil transects conducted by soil scientists. Soil transects are a systematic way to sample a specific soil type. Soil borings are taken at regular intervals. Soil scientists then record the characteristics of the soil profiles that they study. They note color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features. This information can then be used to run statistical analysis for specific soil properties. These results, along with other observations, enable the soil scientists to assign the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

Aerial photographs used in this survey were taken in 1988. Soil scientists also studied U.S. Geological Survey topographic maps enlarged to a scale of 1: 12,000, ortho-photographs, and infrared photography to relate land and image features. Specific soil boundaries were drawn on the ortho-photographs. Adjustments of soil boundary lines were made to coincide with the U.S. Geological Survey topographic map contour lines and tonal patterns on aerial photographs.

Formation and Classification of the Soils

This section relates the soils in the survey area to the major factors of soil formation and describes the system of soil classification.

Formation of the Soils

Soil forms through processes that act on deposited geologic material. The factors of soil formation are the physical and mineralogical composition of the parent material; the climate in which the soil formed; the plant and animal life on and in the soil; the relief; and the length of time during which the processes of soil formation have acted on the parent material *(8)*.

Climate and plant and animal life are the predominant active factors of soil formation. They act directly on the parent material, either in place or after being moved from place to place by water, wind, or glaciers, slowly changing it into a natural body that has genetically related horizons. Relief modifies soil formation and can inhibit soil formation on steeper, eroded slopes and in wet depressional or nearly level areas by controlling the moisture status of soils. Finally, time is needed for changing the parent material into a soil that has differentiated horizons.

The factors of soil formation are so closely interrelated and conditioned by each other that few generalizations can be made regarding the effects of any one factor unless the effects of the other factors are understood.

Parent Material

Parent material is the geologic material in which a soil forms. Most of the soils of St. Clair County were derived from parent materials that are a direct or indirect result of glaciers. The parent materials in this survey area are loess, glacial till, glacial outwash, alluvium, and lacustrine deposits.

Loess, or wind-deposited silty material, is the most extensive parent material in St. Clair County. The loess ranges in thickness from more than 100 feet near the bluffs to less than 10 feet in the southeastern part of the county. Menfro and Winfield soils are examples of soils that formed in loess.

Glacial till is nonstratified drift transported and deposited directly by glacial ice with a minimum of water action. It is a mixture of particles of various sizes. The small pebbles in glacial till have sharp corners, a characteristic indicating that they have not been worn by water. The till is acid and firm and ranges from loam to clay, depending on the degree of weathering. Hickory soils are examples of soils that formed in glacial till.

Glacial outwash was deposited by running water from melting glaciers. The size of particles varies, depending on the speed of the stream that carried the material. When the water slowed down, the coarser particles were deposited. The finer particles were carried a greater distance by slower moving water. Negley soils formed in loamy outwash deposits on large ridges.

Alluvium is material deposited by streams on their flood plains. It varies in texture, depending on the speed of the water from which it was deposited. Wakeland and Birds soils formed in recent silty alluvium along the Kaskaskia River and its tributaries. Alluvial soils on the Mississippi River flood plain range from the sandy Rocher soils to the clayey Darwin soils.

Lacustrine material was deposited under still or ponded glacial meltwater. Meltwater from the Mississippi River backed up the flood plains along the Kaskaskia River and its larger tributaries to form glacial lakes. Two distinct periods of glacial lake formation occurred. Redbud and Millstadt soils, on the higher lacustrine terraces, formed in about 40 to 60 inches of loess overlying clayey lacustrine material. Hurst and Okaw soils, on the lower lake plains, formed in about 20 inches of loess or other silty material overlying clayey lacustrine material.

East of Dupo, a unique geologic condition has resulted in karst topography. The karst area is characterized by rolling hills, circular depressions called sinkholes, and caves. Typically, it has a scarcity of streams that have a continuous surface flow. The geologic features contributing to the karst formation are: the permeable loess; a thin, jointed layer of St. Louis Limestone beneath the loess; and a very thin deposit of Illinoian glacial drift. Some of the surface water flows directly into the sinkholes and then into the underground cave-stream system. The Menfro soils

Figure 2.—Water from the karst area leaves an underground cave-stream system.

that formed in the thick loess deposits dominate the karst area *(fig. 2)*.

Climate

St. Clair County has a temperate, humid continental climate. The general climate has had an important overall influence on the characteristics of the soils. However, it is essentially uniform throughout the county and has not caused any major differences among the soils.

Climate has very important effects on weathering, vegetation, and erosion. The weathering of minerals in the soil increases as temperature and rainfall increase. As water moves downward, clay is moved from the surface soil to the subsoil, where it accumulates. The water also dissolves soluble salts and leaches them downward. Climate also influences the kind and extent of plant and animal life. The climate in St. Clair County has favored prairie grass and hardwood forests. Heavy rains can harm exposed areas of soils that have been farmed. Spring rains and wind can cause extensive erosion when crop residue and trees are removed from the surface. More soil will be lost through erosion each year than is formed by natural processes. For more information on climate, see the section "General Nature of the Survey Area."

Living Organisms

Soils are affected by the vegetation under which they formed. The main contribution of the vegetation and biological processes is the addition of organic matter and nitrogen to the soil. The amount of organic material in the soil depends on the kind of native plants that grew on the soil. Grasses have many fine fibrous roots that add large amounts of organic matter to the soil when they die and decay. Soils that formed under prairie vegetation, therefore, have a thick, black or dark brown surface layer. Edwardsville, Mascoutah, and Wakenda soils formed under prairie vegetation. In contrast, the soils whose native vegetation was deciduous trees have a thin, light- colored surface layer, because less organic matter is added to the soil. Caseyville, Marine, and Winfield soils formed under forest vegetation.

Bacteria, fungi, and other micro-organisms help to break down the organic matter and thus provide nutrients for plants and other soil organisms. The stability of soil aggregates, which are structural units made up of sand, silt, and clay, is affected by microbial

activity because cellular excretions from these organisms help to bind soil particles together. Stable aggregates help to maintain soil porosity and promote favorable relationships among soil, water, and air. Moreover, earthworms, crayfish, insects, and burrowing animals tend to incorporate organic matter into the soil and help to keep soils open and porous.

Relief

Relief, which includes elevation, topography, and water table levels, largely determines the natural drainage of soils. In St. Clair County, the slopes range from 0 to 70 percent. Natural soil drainage ranges from well drained on the side slopes and ridges to very poorly drained in depressions.

Relief affects the depth to the seasonal high water table or natural drainage of the soil by influencing infiltration and runoff rates. The poorly drained Mascoutah and Virden soils occur in low lying, nearly level areas and have a water table close to the surface for most of the year. The soil pores contain water, which restricts the circulation of air in the soil. Under these conditions, iron and manganese compounds are chemically reduced. As a result, the subsoil is dull gray and mottled. In the more sloping, well drained Wakenda soils, the water table is lower and some of the rainfall runs off the surface. The soil pores contain less water and more air. The iron and manganese compounds are well oxidized. As a result, the subsoil is brown.

Nearly level, poorly drained soils, such as Mascoutah soils, are less well developed than the gently sloping, well drained Wakenda soils. Mascoutah soils have a high water table for part of the year. The wetness inhibits the removal of weathered products. In contrast, Wakenda soils are deeper to a water table. As a result, weathered products are translocated downward to a greater extent.

Local relief also influences the severity of erosion. Some erosion occurs on all sloping soils, but the hazard becomes more severe as the slope and the runoff rate increase.

Time

The length of time needed for the formation of a soil depends on the other factors of soil formation. Soils form more rapidly and are more acid if the parent material is low in lime content. Thus, more rapidly permeable soils form more readily than more slowly permeable soils because lime and other soluble minerals are leached more quickly. Forest soils form more quickly than prairie soils because grasses are more efficient in recycling calcium and other bases from the subsoil to the surface layer. Soils in humid climates that support good growth of vegetation form more rapidly than those in dry climates.

The length of time that the parent materials have been in place determines, to a great extent, the degree of profile development. Most of the soils in St. Clair County began forming with the retreat of the last glacier about 12,500 years ago. On flood plains, however, material is deposited during each flood. This continual deposition slows development. Wakeland soils formed in alluvium and have a very weakly developed profile.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 4, "Classification of the Soils," in Parts I and II of the publication shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Eleven soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol.* An example is Mollisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquoll (*Aqu*, meaning water, plus *oll*, from Mollisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Endoaquolls (*Endo*, meaning soils with endosaturation, plus *aquoll*, the suborder of the Mollisols that has an aquic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Endoaquolls.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and

other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, thickness of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-silty, mixed, superactive, mesic Typic Endoaquolls.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series. An example is the Beaucoup series.

Soil Series and Detailed Soil Map Units

In this section, arranged in alphabetical order, each soil series recognized in the survey area is described. Each description is followed by the detailed soil map units associated with the series.

Characteristics of the soil and the material in which it formed are identified for each soil series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" *(16)*. Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" *(15)*. Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units on the detailed maps in Part III of this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses. More information about each map unit is given in Part II of this survey.

A map unit delineation on the detailed soil maps represents an area on the landscape and consists of one or more soils or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils or miscellaneous areas. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils and miscellaneous areas are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some "included" areas that belong to other taxonomic classes.

Most included soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, soils. They may or may not be mentioned in the map unit description. Other included soils and miscellaneous areas, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, soils. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The included areas of contrasting soils or miscellaneous areas are mentioned in the map unit descriptions. A few included areas may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of included areas in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but if intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying layers, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying layers. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Aviston silt loam, 5 to 10 percent slopes, eroded, is a phase of the Aviston series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Sylvan-Bold silt loams, 18 to 35 percent slopes, eroded is an example.

This survey includes *miscellaneous areas.* Such areas have little or no soil material and support little or no vegetation. Pits, gravel is an example.

Table 5, "Acreage and Proportionate Extent of the Soils," in Parts I and II of the manuscript gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The "Glossary" defines many of the terms used in describing the soils or miscellaneous areas.

Alvin Series

Taxonomic Class: Coarse-loamy, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon for MLRA 114

Alvin fine sandy loam, gently sloping, in a cultivated field at an elevation of about 395 feet above mean sea level; about 2 miles west of Fayetteville in St. Clair County, Illinois (map sheet New Athens East/NW, IL.); approximately 300 feet west and 1,900 feet south of the northeast corner of sec. 11, T. 2 S., R. 7 W.; USGS New Athens East, IL. geographic quadrangle; lat. 38 degrees 22 minutes 28 seconds N. and long. 89 degrees 50 minutes 8 seconds W.

Ap—0 to 9 inches; dark brown (10YR 3/3) fine sandy loam, pale brown (10YR 6/3) dry; weak very fine granular structure; very friable; many very fine and common fine roots; neutral; clear smooth boundary.

Bt1—9 to 18 inches; brown (10YR 4/3) fine sandy loam; moderate fine subangular blocky structure; very friable; many very fine and few fine roots; few very fine continuous tubular pores; common faint dark brown (10YR 3/3) organo-clay films on faces of peds; slightly acid; clear smooth boundary.

Bt2—18 to 27 inches; brown (10YR 4/3) fine sandy loam; moderate fine subangular blocky structure; very friable; common very fine and few fine roots; few fine continuous tubular pores; common distinct dark brown (10YR 3/3) organo-clay films on faces of peds; slightly acid; clear smooth boundary.

Bt3—27 to 38 inches; brown (7.5YR 4/4) fine sandy loam with strata of sandy clay loam in the lower part; moderate medium subangular blocky structure; friable; common very fine and few fine roots; common fine and medium continuous tubular pores; common faint dark brown (7.5YR 3/4) clay films on faces of peds and few prominent black (7.5YR 2.5/1) organic coatings lining root channels and pores; slightly acid; gradual smooth boundary.

Bt4—38 to 47 inches; brown (7.5YR 4/4) fine sandy loam; moderate medium subangular blocky structure; very friable; few very fine roots; few fine continuous tubular pores; common faint dark brown (7.5YR 3/4) clay films on faces of peds and few prominent black (7.5YR 2.5/1) organic coatings lining root channels and pores; slightly acid; clear smooth boundary.

Bt&E—47 to 65 inches; strong brown (7.5YR 4/6) fine sandy loam (Bt); occurs as many thin to thick lamellae and occupies about 60 percent of the volume; moderate medium subangular blocky structure; friable; common distinct brown (7.5YR 4/4) clay films on faces of peds; brown (7.5YR 5/4) loamy fine sand (E); weak medium subangular blocky structure; very friable; slightly acid; clear smooth boundary.

C—65 to 80 inches; light yellowish brown (10YR 6/4) fine sand; single grain; loose; neutral.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon, including lamellae: Greater than 40 inches

Ap or A horizon:
Hue—10YR
Value—3 or 4 (6 or 7 dry)
Chroma—1 to 4
Texture—very fine sandy loam, fine sandy loam, or sandy loam, and less commonly loamy sand or loamy fine sand

E horizon, where present:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 to 4
Texture—very fine sandy loam, fine sandy loam, sandy loam, or loamy fine sand

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—very fine sandy loam, fine sandy loam, sandy loam, or loam; and thin layers of sandy clay loam or clay loam are in some pedons

E&Bt or Bt&E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 to 6 in the E part, and 3 to 6 in the Bt part
Texture—sandy loam, loamy sand, or sand, and the fine or very fine analogs in the E part; and sandy loam, loamy sand, or the fine or very fine analogs; or loam in the Bt part

Some pedons have a BC horizon and some pedons do not have an E&Bt or Bt&E horizon.

C horizon, where present:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—sandy loam, loamy sand, or sand, or the fine and very fine analogs

8131B—Alvin fine sandy loam, 2 to 5 percent slopes, occasionally flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Alluvium
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Alvin and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that have a darker surface horizon
* Soils that contain more clay in the subsoil
Dissimilar soils:
* Areas of short steep slopes on terrace risers

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Atlas Series

Taxonomic Class: Fine, smectitic, mesic Aeric Chromic Vertic Epiaqualfs

Typical Pedon for MLRA 114

Atlas silty clay loam, on a severely eroded back slope, with a 12 percent gradient, in a cultivated field at an elevation of about 485 feet above mean sea level; about 5 miles east of Waterloo in Monroe County, Illinois; approximately 820 feet west and 400 feet south of the northeast corner of sec. 26, T. 2 S., R. 9 W.; USGS Paderborn, IL. topographic quadrangle; lat. 38 degrees 20 minutes 15 seconds N. and long. 90 degrees 2 minutes 56 seconds W.

Ap—0 to 9 inches; brown (10YR 4/3) silty clay loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; common very fine and few fine roots; few fine tubular pores; few fine irregular dark reddish brown (5YR 3/3) masses of iron-manganese accumulation with clear boundaries; common fine and medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; neutral; abrupt smooth boundary.

2Bt—9 to 21 inches; yellowish brown (10YR 5/4) silty clay loam; weak fine prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; few fine tubular pores; few faint brown (10YR 5/3) clay films on faces of peds; many medium distinct grayish brown (10YR 5/2) iron depletions and common fine prominent yellowish red (5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular dark brown (7.5YR 3/4) iron-manganese nodules with clear boundaries; about 1 percent pebbles; moderately acid; clear smooth boundary.

2Btg1—21 to 31 inches; gray (10YR 6/1) silty clay loam; moderate fine prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; common faint grayish brown (10YR 5/2) clay films on faces of peds and few prominent very dark grayish brown (10YR 3/2) organo-clay films lining root channels and pores; many fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular dark reddish brown (5YR 3/3) iron-manganese nodules with clear boundaries; about 2 percent pebbles; slightly acid; clear smooth boundary.

2Btg2—31 to 41 inches; gray (10YR 6/1) silty clay; moderate medium prismatic structure parting to

moderate medium angular blocky; very firm; few very fine roots; common faint grayish brown (10YR 5/2) clay films on faces of peds; many coarse prominent strong brown (7.5YR 5/6) and few medium prominent reddish brown (5YR 4/4) masses of iron accumulation in the matrix; few medium rounded dark brown (7.5YR 3/2) iron-manganese concretions with sharp boundaries; about 2 percent pebbles; neutral; clear smooth boundary.

2Btg3—41 to 51 inches; gray (10YR 6/1) silty clay; moderate coarse prismatic structure parting to moderate medium angular blocky; very firm; few very fine roots; few distinct grayish brown (10YR 5/2) clay films on faces of peds; many coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) iron-manganese nodules with clear boundaries; about 5 percent pebbles; slightly alkaline; clear smooth boundary.

2Btg4—51 to 65 inches; gray (10YR 6/1) silty clay; weak coarse prismatic structure parting to weak medium angular blocky; very firm; common distinct gray (10YR 5/1) clay films on faces of peds; many coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; many medium and coarse black (10YR 2/1) iron-manganese concretions with sharp boundaries; about 5 percent pebbles; slightly alkaline; gradual smooth boundary.

2Btg5—65 to 80 inches; gray (10YR 5/1) silty clay; weak coarse prismatic structure parting to weak medium angular blocky; very firm; common distinct dark gray (10YR 4/1) clay films on faces of peds; many coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; many coarse black (10YR 2/1) iron-manganese concretions with sharp boundaries; about 5 percent pebbles; slightly alkaline.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: Greater than 42 inches
Thickness of loess or silty pedisediment: 0 to 20 inches

Ap or A horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—1 to 4
Texture—silt loam or loam, but some severely eroded pedons are silty clay loam or clay loam

Some pedons have an E or a BE horizon.

Bt or 2Bt horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—3 or 4
Texture—clay loam, silty clay loam, silty clay, or clay

Btg or 2Btg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—clay loam, silty clay loam, silty clay, or clay

BC and C horizons, or 2BC and 2C horizons, where present:
Hue—7.5 YR, 10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 6
Texture—silty clay loam, clay loam, or loam

Aviston Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls

Typical Pedon for MLRA 114

Aviston silt loam, with an east-facing slope, with a 3 percent gradient on a convex summit in a cultivated field at an elevation of about 500 feet above mean sea level; about 1 mile southwest of Addieville in Washington County, Illinois; approximately 2,540 feet north and 1,820 feet east of the southwest corner of sec. 2, T. 2 S., R. 4 W.; USGS Okawville, IL. topographic quadrangle; lat. 38 degrees 22 minutes 53 seconds N. and long. 89 degrees 30 minutes 20 seconds W.

Ap—0 to 10 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate very fine granular structure; friable; common very fine and fine roots throughout; about 18 percent clay; neutral; abrupt smooth boundary.

A—10 to 16 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine and medium subangular blocky structure parting to moderate fine granular; friable; common very fine and fine roots throughout; common distinct very dark gray (10YR 3/1) organic coatings on faces of peds; about 22 percent clay; neutral; clear smooth boundary.

Bt1—16 to 23 inches; brown (10YR 4/3) silty clay loam; moderate fine prismatic structure parting to moderate medium subangular blocky; friable; common very fine roots between peds; many distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; about 33 percent clay; slightly acid; clear smooth boundary.

Bt2—23 to 32 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure parting to

moderate medium subangular blocky; friable; common very fine roots between peds; many distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds and few prominent very dark gray (10YR 3/1) organic coatings lining root channels; common fine faint light brownish gray (10YR 6/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation; about 30 percent clay; slightly acid; clear smooth boundary.

Bt3—32 to 39 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; few very fine roots between peds; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds and few prominent very dark gray (10YR 3/1) organic coatings lining root channels; common fine faint light brownish gray (10YR 6/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation; about 28 percent clay; slightly acid; gradual smooth boundary.

Bt4—39 to 48 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure; friable; few very fine roots between peds; common distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds and few prominent very dark gray (10YR 3/1) organic coatings lining root channels; common fine faint light brownish gray (10YR 6/2) iron depletions and common fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation; about 28 percent clay; slightly acid; gradual smooth boundary.

Bt5—48 to 67 inches; brown (10YR 5/3) silt loam; weak medium prismatic structure; friable; few very fine roots between peds; few faint grayish brown (10YR 5/2) clay films on vertical faces of peds and very few prominent very dark gray (10YR 3/1) organic coatings lining root channels; many fine faint light brownish gray (10YR 6/2) iron depletions and common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation; about 24 percent clay; slightly acid; clear smooth boundary.

2BC—67 to 80 inches; brown (7.5YR 5/3) silt loam; weak coarse prismatic structure; friable; few distinct brown (10YR 4/3) clay films on vertical faces of peds; many medium faint pinkish gray (7.5YR 6/2) iron depletions and many fine and medium distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) masses of iron-manganese accumulation; about 17 percent clay; slightly acid.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: 52 to more than 80 inches
Thickness of loess: About 60 to 80 inches
Thickness of the mollic epipedon: 10 to 20 inches
Particle-size control section: Averages 27 to 35 percent clay and less than 7 percent sand

In undisturbed areas the A horizon has value of 2 or 3 (4 or 5 dry), and chroma of 1 to 3.

Ap and A horizons:
Hue—10YR
Value—3 (5 dry)
Chroma—1 to 3
Texture—silt loam

Some pedons have an AB or a BA horizon.

Bt horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—3 to 6, 2 to 6 in the lower part
Texture—silty clay loam, but is silt loam in the lower part in some pedons

2Bt, 2BC, and 2C horizons, where present:
Hue—7.5YR, 10YR, or 2.5Y
Value—5 or 6
Chroma—1 to 4
Texture—Silt loam, but is silty clay loam in the upper part in some pedons

438B—Aviston silt loam, 2 to 5 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Aviston and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that have a thinner dark surface horizon
* Areas of somewhat poorly drained and/or well drained soils
* Small areas with a concentration of exchangeable sodium in the subsoil

Dissimilar soils:
* Poorly drained Virden soils in small depressions

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

438C2—Aviston silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Aviston and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that have a thinner dark surface horizon
* Areas of well drained soils

Dissimilar soils:
* Wakeland soils in small upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Bartelso Series

Taxonomic Class: Fine, mixed, superactive, mesic Aquertic Argiudolls

Typical Pedon for MLRA 114

Bartelso silt loam, on a nearly level lake plain, in a cultivated field at an elevation of about 415 feet above mean sea level; about 2 miles southeast of Bartelso in Clinton County, Illinois; approximately 363 feet north and 2,523 feet west of the southeast corner of sec. 20, T. 1 N., R. 3 W.; USGS Beckemeyer, IL. topographic quadrangle; lat. 38 degrees 30 minutes 32 seconds N. and long. 89 degrees 27 minutes 15 seconds W.

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; common very fine roots; few fine continuous tubular pores; slightly acid; abrupt smooth boundary.

A—8 to 12 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak medium platy structure parting to moderate fine granular; friable; common very fine roots; few fine continuous tubular pores; few faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; clean silt and sand grains are evident when dry; slightly acid; abrupt smooth boundary.

Bt1—12 to 17 inches; brown (10YR 5/3) silty clay loam; moderate medium subangular blocky structure; firm; few very fine roots; common very fine and fine continuous tubular pores; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine distinct gray (10YR 5/1) iron depletions and common fine faint dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) masses of iron-manganese accumulation; moderately acid; clear smooth boundary.

2Bt2—17 to 24 inches; brown (10YR 5/3) silty clay; strong medium angular blocky structure; firm; few very fine roots; few very fine and fine constricted tubular pores; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common

fine distinct gray (10YR 5/1) iron depletions and common fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) masses of iron-manganese accumulation; moderately acid; clear smooth boundary.

2Bt3—24 to 35 inches; brown (10YR 5/3) silty clay; strong coarse angular blocky structure; very firm; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine distinct gray (10YR 5/1) iron depletions and common fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; common fine irregular black (10YR 2/1) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation; neutral; clear smooth boundary.

2Btkg1—35 to 45 inches; gray (10YR 5/1) silty clay loam; weak coarse subangular blocky structure; very firm; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; many fine irregular black (10YR 2/1) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation and common medium rounded light gray (10YR 7/2) carbonate nodules; strongly effervescent; slightly alkaline; clear smooth boundary.

2Btkg2—45 to 62 inches; gray (10YR 5/1) silt loam; weak coarse prismatic structure; firm; few distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds and few prominent very dark grayish brown (10YR 3/2) clay films lining root channels; many fine prominent brownish yellow (10YR 6/6) masses of iron accumulation in the matrix; many fine and medium irregular black (10YR 2/1) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation and few fine rounded light gray (10YR 7/2) carbonate nodules; strongly effervescent; slightly alkaline; gradual smooth boundary.

2Cg—62 to 80 inches; gray (10YR 6/1) stratified silt loam and silty clay loam; massive; friable; few fine vesicular pores; few prominent very dark grayish brown (10YR 3/2) clay films lining root channels and pores; many fine and medium prominent brownish yellow (10YR 6/6) masses of iron accumulation in the matrix; common fine irregular black (10YR 2/1) masses of iron-manganese accumulation; very slightly effervescent; slightly alkaline.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: Greater than 42 inches
Thickness of loess: About 10 to 30 inches
Thickness of the mollic epipedon: 10 to 18 inches

Ap or A horizon:
Hue—10YR
Value—3 (5 dry)
Chroma—1 or 2
Texture—silt loam, but is silty clay loam in the lower part of some pedons

Some pedons have an incipient E horizon instead of a subsurface A horizon.

Bt and/or BE horizon:
Hue—10YR or 2.5Y
Value—3 to 5
Chroma—2 or 3
Texture—silty clay loam

2Bt and/or 2Btg horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 to 4
Texture—silty clay loam or silty clay

2Btkg horizon, where present:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 or 2
Texture—silt loam or silty clay loam

2BCg and/or 2Cg horizon, where present:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Texture—silt loam or silty clay loam, and may be stratified

466A—Bartelso silt loam, 0 to 2 percent slopes

Setting

Landform: Lake Plain
Position of Landform: Broad Flat

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Lacustrine deposits
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Bartelso and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils with less clay in the subsoil
* Areas of poorly drained and/or moderately well drained soils
* Soils that have a thinner dark surface horizon

Dissimilar soils:
* Redbud soils on higher parts of the landform

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Beaucoup Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Fluvaquentic Endoaquolls

Typical Pedon for MLRA 114/115B

Beaucoup silty clay loam, nearly level, in a cultivated field at an elevation of about 395 feet above mean sea level; about 6 miles northwest of Valmeyer in Monroe County, Illinois; approximately 2,180 feet west and 2,080 feet south of the northeast corner of sec. 17, T. 2 S., R. 11 W.; USGS Valmeyer, IL.-MO. topographic quadrangle; lat. 38 degrees 21 minutes 48 seconds N. and long. 90 degrees 20 minutes 22 seconds W.

Ap—0 to 11 inches; very dark gray (10YR 3/1) silty clay loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; common very fine and fine roots throughout; few fine rounded black (N 2.5/0) iron-manganese nodules; neutral; abrupt smooth boundary.

AB—11 to 16 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; moderate fine angular blocky structure; friable; common very fine and fine roots throughout; common fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine irregular brown (7.5YR 4/4) masses of iron-manganese accumulation and few fine rounded black (N 2.5/0) iron-manganese nodules; neutral; clear smooth boundary.

Btg1—16 to 24 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate medium prismatic structure parting to moderate fine angular blocky; friable; few very fine and fine roots along ped faces; common distinct very dark grayish brown (2.5Y 3/2) organo-clay films on faces of peds; common fine prominent reddish brown (5YR 4/4) masses of iron accumulation in the matrix; few fine irregular yellowish red (5YR 4/6) masses of iron-manganese accumulation and few fine rounded black (N 2.5/0) iron-manganese nodules; slightly alkaline; clear smooth boundary.

Btg2—24 to 35 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate medium prismatic structure parting to moderate fine angular blocky; friable; few very fine roots along ped faces; many distinct very dark grayish brown (2.5Y 3/2) organo-clay films on faces of peds; thin band of dark grayish brown (2.5Y 4/2) silt coatings, light brownish gray (2.5Y 6/2, dry), at 32 inches; common fine prominent dark red (2.5YR 3/6) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation and few fine rounded black (N 2.5/0) iron-manganese nodules; slightly alkaline; clear smooth boundary.

Btg3—35 to 46 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; friable; few very fine roots along ped faces; few very fine and fine tubular pores; many distinct very dark grayish brown (2.5Y 3/2) organo-clay films on faces of peds; common medium prominent brown (7.5YR 4/4) and few fine prominent dark red (2.5YR 3/6) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) and black (N 2.5/0) masses of iron-manganese accumulation; slightly alkaline; clear smooth boundary.

Btg4—46 to 64 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate medium prismatic structure parting to moderate fine and medium angular blocky; friable; few very fine roots along ped faces; common very fine and fine tubular pores; common distinct dark grayish brown (2.5Y 4/2) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) and few medium prominent reddish brown (5YR 4/3) masses of iron accumulation in the matrix; few medium irregular black (N 2.5/0) masses of iron-manganese accumulation; slightly alkaline; clear smooth boundary.

Cg—64 to 80 inches; stratified dark grayish brown (2.5Y 4/2) silty clay loam and silt loam; massive; friable; few fine tubular pores; common fine faint gray (10YR 5/1) iron depletions; common medium distinct brown (10YR 4/3) masses of iron accumulation in the matrix; common medium

irregular black (N 2.5/0) masses of iron-manganese accumulation; slightly alkaline.

MLRA Series Range in Characteristics

Depth to the base of soil development: 35 to 65 inches
Thickness of the mollic epipedon: 10 to 24 inches, and extends into the upper part of the B horizon in some pedons
Series control section: The upper and middle parts of the control section average 27 to 35 percent clay and average 0 to 15 percent sand. The lower part averages 10 to 30 percent clay and ranges from 5 to 40 percent sand.
Reaction: The control section ranges from moderately acid to slightly alkaline.
Depth to carbonates: Greater than 40 inches, where present

Ap horizon, and A, AB, or BA horizons, where present:
Hue—10YR or neutral
Value—2 or 3 (4 or 5 dry)
Chroma—0 to 2
Texture—silty clay loam

Btg horizon, and Bg or BCg horizons, where present:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—3 to 6
Chroma—0 to 2
Texture—silty clay loam

Cg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam, with thick to thin strata of silt loam, loam, sandy loam, fine sandy loam, or very fine sandy loam in some pedons

3070L—Beaucoup silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration

Setting

Landform: Flood Plain

Soil Properties and Qualities

Dominant parent material: Alluvium
Flooding frequency: Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Beaucoup and similar soils: 100 percent

Similar soils:
* Soils that contain less clay in the subsoil
* Soils that have a thinner dark surface layer
* Areas of very poorly drained soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

8070A—Beaucoup silty clay loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Dominant parent material: Alluvium
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Beaucoup and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that contain more sand in the substratum

Dissimilar soils:
* Moderately well drained Haynie soils on natural levees

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section

* "Engineering" section
* "Soil Properties" section

Bethalto Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Udollic Endoaqualfs

Typical Pedon for MLRA 115B

Bethalto silt loam, with an east-facing slope, with a 2 percent gradient in a cultivated field at an elevation of about 500 feet above mean sea level; about 2.5 miles northeast of Troy in Madison County, Illinois; approximately 1,060 feet north and 500 feet west of the center of sec. 35, T. 4 N., R. 7 W.; USGS Marine, IL. topographic quadrangle; lat. 38 degrees 45 minutes 15 seconds N. and long. 89 degrees 50 minutes 50 seconds W.

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; common very fine roots; common fine tubular pores; few fine rounded black (10YR 2/1) and strong brown (7.5YR 5/6) iron-manganese nodules with sharp boundaries; about 21 percent clay; neutral; abrupt smooth boundary.

Eg1—8 to 11 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium platy structure parting to weak fine granular; friable; few very fine roots; few fine tubular pores; common distinct gray (10YR 6/1, dry) clay depletions along pores; few fine faint brown (10YR 4/3) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) and strong brown (7.5YR 5/6) iron-manganese nodules with sharp boundaries; about 19 percent clay; neutral; clear smooth boundary.

Eg2—11 to 15 inches; grayish brown (10YR 5/2) silt loam, light brownish gray (10YR 6/2) dry; weak thick platy structure parting to weak medium granular; friable; few very fine roots; few fine tubular pores; many distinct light gray (10YR 7/1, dry) clay depletions on faces of peds and along pores; few fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; common fine rounded black (10YR 2/1) and strong brown (7.5YR 5/6) iron-manganese nodules with sharp boundaries; about 18 percent clay; slightly acid; clear smooth boundary.

Bt—15 to 24 inches; brown (10YR 4/3) silty clay loam; moderate fine prismatic structure parting to moderate fine and medium subangular blocky; firm; few very fine roots; few fine tubular pores; few distinct light gray (10YR 7/1, dry) clay depletions on faces of peds and along pores; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine faint light brownish gray (10YR 6/2) iron depletions and few fine faint dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear boundaries; about 32 percent clay; moderately acid; clear smooth boundary.

Btg1—24 to 36 inches; grayish brown (10YR 5/2) silty clay loam; weak fine prismatic structure parting to moderate fine and medium subangular blocky; firm; few very fine roots; few very fine tubular pores; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; common fine rounded black (7.5YR 2.5/1) iron-manganese nodules with clear boundaries; about 31 percent clay; moderately acid; gradual smooth boundary.

Btg2—36 to 48 inches; grayish brown (10YR 5/2) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; few very fine tubular pores; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds and lining pores; many medium and coarse prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; common fine and medium irregular very dark brown (7.5YR 2.5/2) and strong brown (7.5YR 4/6) iron-manganese nodules with clear boundaries; about 30 percent clay; slightly acid; gradual smooth boundary.

Btg3—48 to 62 inches; grayish brown (10YR 5/2) silty clay loam; weak medium prismatic structure parting to weak medium subangular blocky; friable; few very fine roots; few very fine tubular pores; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds and lining pores; many medium and coarse prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; common fine and medium irregular very dark brown (7.5YR 2.5/2) and strong brown (7.5YR 4/6) iron-manganese nodules with clear boundaries; about 28 percent clay; slightly acid; clear smooth boundary.

BCtg—62 to 70 inches; light brownish gray (10YR 6/2) silt loam; weak coarse angular blocky structure; friable; few fine vesicular pores; common distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; few prominent very dark grayish brown (10YR 3/2) clay films lining root channels and filling pores; common medium and coarse prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; common fine and medium irregular very dark brown (7.5YR 2.5/2) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about

26 percent clay; slightly acid; gradual smooth boundary.

Cg—70 to 80 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; few fine vesicular pores; few distinct dark grayish brown (10YR 4/2) clay films lining root channels and filling pores; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 23 percent clay; neutral.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: 42 to 80 inches
Depth to carbonates: Greater than 5 feet, where present
Particle-size control section: Averages 27 to 35 percent clay and averages less than 7 percent sand

Ap or A horizon:
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 or 2
Texture—silt loam

Eg or E horizon:
Hue—10YR
Value—4 to 6 (6 or 7 dry)
Chroma—1 to 3
Texture—silt loam

BE or EB horizon, where present:
Hue—10YR
Value—4 to 6
Chroma—1 to 3
Texture—silt loam or silty clay loam

Bt or Btg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—2 to 4
Texture—typically silty clay loam, but it is silt loam in the lower part of some pedons

BCt or BCtg horizon, where present:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—2 to 4
Texture—silt loam or silty clay loam

C or Cg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—5 or 6
Chroma—1 to 4
Texture—silt loam

90A—Bethalto silt loam, 0 to 2 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Bethalto and similar soils: 100 percent

Similar soils:
* Soils that have a mollic epipedon
* Areas of moderately well drained soils
* Soils that contain more clay in the subsoil

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Biddle Series

Taxonomic Class: Fine, smectitic, mesic Aquertic Argiudolls

Typical Pedon for MLRA 114

Biddle silt loam, from Herrick-Biddle-Piasa silt loams, 0 to 2 percent slopes; nearly level in a cultivated field at an elevation of about 475 feet above mean sea level; about 2 miles southwest of Freeburg in St. Clair County, Illinois (map sheet Freeburg SW, IL.); approximately 1,290 feet south and 1,555 east of the northwest corner of sec. 1, T. 2 S., R. 8 W.; USGS Freeburg, IL. topographic quadrangle; lat. 38 degrees 23 minutes 32 seconds N. and long. 89 degrees 56 minutes 10 seconds W.

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; many very fine roots; few fine rounded black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 23 percent clay; slightly acid; abrupt smooth boundary.

A—7 to 13 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine and medium granular structure; friable; many very fine roots; few fine rounded black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 22 percent clay; neutral; clear smooth boundary.

Eg—13 to 16 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak medium platy structure parting to weak fine granular; friable; common very fine roots; common distinct light gray (10YR 7/2, dry) clay depletions on faces of peds; few fine rounded black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 21 percent clay; neutral; clear smooth boundary.

Bt—16 to 25 inches; brown (10YR 4/3) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine faint grayish brown (10YR 5/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine rounded black (7.5YR 2.5/1) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation with sharp boundaries; about 38 percent clay; neutral; clear smooth boundary.

Btng1—25 to 36 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium subangular blocky structure; firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 37 percent clay; slightly alkaline; clear smooth boundary.

Btng2—36 to 46 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium subangular blocky structure; firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium and coarse irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 34 percent clay; slightly alkaline; clear smooth boundary.

Btng3—46 to 55 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium subangular blocky structure; firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium and coarse irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 29 percent clay; slightly alkaline; gradual smooth boundary.

BCtng—55 to 62 inches; grayish brown (2.5Y 5/2) silt loam; weak coarse subangular blocky structure; friable; few distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; common fine and medium prominent brownish yellow (10YR 6/6) masses of iron accumulation in the matrix; common medium and coarse irregular black (7.5YR 2.5/1) and dark brown (7.5YR 3/3) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 4/6) boundaries; about 24 percent clay; slightly alkaline; gradual smooth boundary.

Cg1—62 to 76 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular black (7.5YR 2.5/1) and dark brown (7.5YR 3/3) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 4/6) boundaries; about 22 percent clay; slightly alkaline; clear smooth boundary.

2Cg2—76 to 99 inches; brown (7.5YR 5/2) silt loam; massive; friable; many fine and medium distinct brown (7.5YR 5/4) masses of iron accumulation in the matrix; common fine and medium irregular black (7.5YR 2.5/1) and dark brown (7.5YR 3/3) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 4/6) boundaries; about 25 percent clay, 12 percent sand, and 1 percent pebbles; slightly alkaline.

MLRA Series Range in Characteristics

Thickness of the mollic epipedon: 10 to 18 inches
Thickness of loess: About 60 to 80 inches
Depth to carbonates: Carbonates, where present, typically occur in the B horizon, but they occur in the BCg and Cg horizons in some pedons.

Ap and A horizons:
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 or 2
Texture—silt loam

Eg horizon, where present:
Hue—10YR

Value—4 or 5
Chroma—1 or 2
Texture—silt loam

Bt horizon:
Hue—10YR, 2.5Y, or 5Y
Value—3 to 5 in the upper part, and 4 to 6 in the lower part
Chroma—1 to 4
Texture—silty clay loam or silty clay in the upper part, and silty clay loam or silt loam in the lower part

Cg or 2Cg horizon:
Hue—7.5YR, 10YR, 2.5Y, 5Y, or neutral
Value—5 or 6
Chroma—0 to 2
Texture—silt loam

Birds Series

Taxonomic Class: Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents

Typical Pedon for MLRA 114

Birds silt loam, nearly level in a cultivated field, at an elevation of about 445 feet above mean sea level; about 3 miles southeast of Troy in Madison County, Illinois; approximately 80 feet north and 2,000 feet west of the center of sec. 24, T. 3 N., R. 7 W.; USGS St. Jacob, IL. topographic quadrangle; lat. 38 degrees 41 minutes 37 seconds N. and long. 89 degrees 50 minutes 5 seconds W.

Ap—0 to 8 inches; dark gray (10YR 4/1) silt loam, light brownish gray (10YR 6/2) dry; weak medium subangular blocky structure parting to moderate medium granular; friable; common very fine roots; thin lenses of gray (10YR 6/1) silt grains along faces of peds; few fine prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.

Cg1—8 to 13 inches; gray (5Y 5/1) silt loam; massive with weak thick platy stratification planes; friable; few very fine roots; few very fine and fine continuous tubular pores; common medium prominent dark reddish brown (5YR 3/3) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.

Cg2—13 to 19 inches; stratified very dark gray (5Y 3/1) and dark gray (5Y 4/1) silt loam and silty clay loam; massive; firm; few very fine roots; common very fine and fine continuous tubular pores; common medium prominent dark reddish brown (5YR 3/4) masses of iron accumulation in the matrix; few medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; slightly acid; abrupt smooth boundary.

Cg3—19 to 39 inches; gray (5Y 6/1) silt loam; massive; friable; few very fine roots; few very fine continuous tubular pores; many medium prominent yellowish red (5YR 4/6) and yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; moderately acid; clear smooth boundary.

Cg4—39 to 63 inches; variegated light brownish gray (2.5Y 6/2) and light gray (10YR 7/1) silt loam; massive; friable; few very fine roots; few very fine continuous tubular pores; many medium prominent yellowish brown (10YR 5/8) and few medium prominent yellowish red (5YR 4/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) iron-manganese nodules with clear boundaries; strongly acid; gradual smooth boundary.

Cg5—63 to 78 inches; grayish brown (2.5Y 5/2) stratified silt loam and silty clay loam; massive; friable; few very fine roots; few very fine continuous tubular pores; common fine distinct light gray (10YR 7/1) iron depletions and few medium prominent yellowish brown (10YR 5/8) and strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular black (10YR 2/1) iron-manganese nodules with clear yellowish red (5YR 4/6) boundaries; moderately acid; clear smooth boundary.

2Btgb—78 to 90 inches; dark gray (2.5Y 4/1) silty clay loam; moderate fine prismatic structure parting to weak fine and medium angular blocky; firm; few very fine and fine vesicular and tubular pores; common distinct very dark gray (2.5Y 3/1) organo-clay films on vertical faces of peds and few prominent dark reddish brown (5YR 2.5/2) iron-manganese coatings lining root channels and pores; few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (5YR 2.5/1) iron-manganese nodules with clear yellowish red (5YR 4/6) boundaries; slightly acid.

MLRA Series Range in Characteristics

Thickness of the solum: 5 to 30 inches
Particle-size control section: Averages 18 to 27 percent clay and less than 15 percent fine or coarser sand
Reaction: Birds soils typically are moderately acid to slightly alkaline to depths greater than 40 inches, but some pedons have subhorizons that are strongly acid.

Ap, A, or ACg horizons:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6 (6 or 7 dry)

Chroma—1 or 2
Texture—silt loam

Cg horizons to a depth of 40 inches:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 7
Chroma—1 or 2
Texture—silt loam, and some pedons contain thin strata of silty clay loam

Cg horizons below a depth of 40 inches:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 7
Chroma—1 or 2
Texture—dominantly silt loam, but some pedons contain strata of silty clay loam, clay loam, loam, or sandy loam

3334L—Birds silt loam, 0 to 2 percent slopes, frequently flooded, long duration

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Poorly drained
Dominant parent material: Alluvium
Flooding frequency: Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Birds and similar soils: 100 percent

Similar soils:
* Soils that have a dark surface layer
* Soils that contain more clay in the upper part
* Areas of somewhat poorly drained soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Blair Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Aquic Hapludalfs

Typical Pedon for MLRA 114

Blair silt loam, on a severely eroded northeast-facing slope of 14 percent, in a cultivated field at an elevation of about 485 feet above mean sea level; about 7 miles north and 4.5 miles east of Pinckneyville in Perry County, Illinois; approximately 1,280 feet north and 700 feet west of the center of sec. 15, T. 4 S., R. 2 W; USGS Todds Mill, IL. topographic quadrangle; lat. 38 degrees 10 minutes 55 seconds N. and long. 89 degrees 18 minutes 30 seconds W.

Ap—0 to 5 inches; yellowish brown (10YR 5/4) silt loam, light yellowish brown (10YR 6/4) dry; moderate coarse angular clods parting to weak fine subangular blocky structure; firm; few faint brown (10YR 4/3) organic coatings on faces of peds; few fine grayish brown (10YR 5/2) peds of silty clay loam; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 3 percent sand; slightly acid; abrupt smooth boundary.

Bt1—5 to 12 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium subangular blocky structure; friable; few distinct very dark grayish brown (10YR 3/2) organic coatings and common distinct brown (10YR 4/3) clay films on faces of peds; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; 14 percent sand and one percent fine pebbles; very strongly acid; clear smooth boundary.

Bt2—12 to 20 inches; grayish brown (10YR 5/2) silt loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 15 percent sand; very strongly acid; gradual smooth boundary.

Bt3—20 to 30 inches; dark grayish brown (10YR 4/2) and grayish brown (10YR 5/2) silt loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; few distinct dark gray (10YR 4/1) clay films on faces of peds; common medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; 18 percent sand and 2 percent fine and medium pebbles; strongly acid; clear smooth boundary.

Bt4—30 to 36 inches; light brownish gray (10YR 6/2) silt loam; weak medium prismatic structure parting

to weak medium subangular blocky; friable; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium faint grayish brown (10YR 5/2) iron depletions and many medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; common fine black (10YR 2.5/0) iron-manganese nodules; 20 percent sand and 2 percent fine and medium pebbles; slightly acid; clear smooth boundary.

Btg—36 to 47 inches; light brownish gray (2.5Y 6/2) silt loam; weak medium prismatic structure parting to weak medium subangular blocky; friable; few faint grayish brown (10YR 5/2) clay films on faces of peds; common medium prominent brown (7.5YR 4/4) masses of iron accumulation in the matrix; 15 percent sand and one percent fine and medium pebbles; neutral; clear smooth boundary.

BCg—47 to 55 inches; gray (10YR 6/1) silt loam; weak coarse prismatic structure; friable; few fine faint gray (10YR 5/1) iron depletions and many coarse prominent yellowish red (5YR 4/6) and few medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 22 percent sand and one percent fine and medium pebbles; neutral; gradual smooth boundary.

Cg—55 to 71 inches; gray (5Y 6/1) silt loam; massive; friable; few fine faint gray (5Y 5/1) iron depletions and common coarse prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 20 percent sand and 2 percent fine and medium pebbles; neutral; clear smooth boundary.

2Btgb—71 to 80 inches; gray (5Y 6/1) clay loam; weak coarse prismatic structure parting to weak coarse subangular blocky; firm; common distinct dark gray (5Y 4/1) clay films on faces of peds; many coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; about 5 percent fine and medium pebbles; slightly alkaline.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: More than 40 inches
Thickness of loess: 0 to 20 inches
Particle-size control section: Averages 25 to 35 percent clay, 10 to 25 percent sand, and less than 10 percent gravel. Typically about one-third to one-half of the sand is very fine.

Ap or A horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 to 4
Texture—silt loam or loam, but includes silty clay loam or clay loam in some severely eroded pedons

E horizon, where present:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture—silt loam or loam

Bt horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture—silty clay loam, silt loam, clay loam, or loam

Btg horizon:
Hue—10YR, 2.5Y, or less commonly 5Y
Value—4 to 6
Chroma—1 or 2
Texture—Same as for Bt

Some pedons have a 2Btg horizon in the lower part formed in accretion gley or in till that contains a strongly developed paleosol.

BCg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—silt loam, loam, silty clay loam, or clay loam

Cg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—silt loam or loam

Some pedons have buried horizons of older soils below a BCg or Cg horizon.

5C2—Blair silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Pedisediment
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Blair and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Areas that are severely eroded
* Soils with a thicker loess cap
* Soils with a paleosol at depths less than 20 inches
Dissimilar soils:
* Darmstadt soils that have a natric horizon
* Wakeland soils in small upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

5C3—Blair silt loam, 5 to 10 percent slopes, severely eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Pedisediment
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Blair and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Areas that are less eroded
* Areas with a thicker loess cap
* Soils with a paleosol at depths less than 20 inches
Dissimilar soils:
* Darmstadt soils that have a natric horizon
* Wakeland soils in small upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

5D3—Blair silt loam, 10 to 18 percent slopes, severely eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Pedisediment
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Blair and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Areas that are less eroded
* Areas with a thicker loess cap
* Soils with a paleosol at depths less than 20 inches
Dissimilar soils:
* Darmstadt soils that have a natric horizon
* Well drained Hickory soils
* Wakeland soils in small upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Blake Series

Taxonomic Class: Fine-silty, mixed, superactive, calcareous, mesic Aquic Udifluvents

Typical Pedon for MLRA 115B

Blake silty clay loam, in a cultivated field, at an elevation of about 365 feet above mean sea level; about 1 mile south of Rockwood in Randolph County, Illinois; approximately 3,295 feet south and 897 feet west of the northeast corner of partial sec. 18, T. 8 S., R. 5 W.; USGS Rockwood, IL-MO. topographic quadrangle; lat. 37 degrees 49 minutes 50 seconds N. and long. 89 degrees 41 minutes 40 seconds W.

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; moderate fine granular structure in the upper part; massive and moderate fine angular blocky in the lower part; firm; slightly alkaline; clear smooth boundary.

C1—6 to 15 inches; stratified very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; thin bedding planes; firm; few fine faint grayish brown 10YR 5/2) iron depletions; slightly effervescent; slightly alkaline; clear smooth boundary.

C2—15 to 20 inches; stratified dark grayish brown (10YR 4/2) silty clay loam and brown (10YR 5/3) silt loam; moderately thick bedding planes; firm; very dark gray (10YR 3/1) faces of peds and worm casts; common medium distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; slightly effervescent; slightly alkaline; abrupt smooth boundary.

C3—20 to 33 inches; stratified brown (10YR 4/3) silt loam and very dark grayish brown (10YR 3/2) silty clay loam; massive; friable; many fine pores; common worm casts; common medium faint yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; slightly effervescent; slightly alkaline; abrupt smooth boundary.

C4—33 to 60 inches; stratified brown (10YR 5/3) and dark grayish brown (10YR 4/2) silt loam, loam, and very fine sandy loam; massive; very friable; many medium and coarse faint pale brown (10YR 6/3) masses of iron accumulation in the matrix; strongly effervescent; slightly alkaline.

MLRA Series Range in Characteristics

Thickness of the solum: Less than 10 inches

Depth to carbonates: These soils contain carbonates throughout the series control section, but the Ap or A horizon is noncalcareous in some pedons.

Ap or A horizon:
Hue—10YR or 2.5Y
Value—3 or 4 (5 or 6 dry)
Chroma—1 or 2
Texture—silty clay loam or silt loam

C horizon, upper part:
Hue—10YR or 2.5Y
Value—3 or 4
Chroma—1 to 4
Texture—silty clay loam or silt loam

C horizon, lower part:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 or 3
Texture—silt loam, loam, or very fine sandy loam averaging less than 15 percent sand coarser than very fine

In some pedons there is as much as 12 inches of loamy very fine sand below a depth of 40 inches. In some pedons, very thin darkened layers are present. Thin discontinuous strata of finer textured material are in some pedons.

3391A—Blake silty clay loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Alluvium
Flooding frequency: Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Blake and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that contain more clay in the surface layer
* Soils that contain more sand throughout

Dissimilar soils:
* Small areas of well drained Rocher soils on natural levees

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Bold Series

Taxonomic Class: Coarse-silty, mixed, superactive, calcareous, mesic Typic Udorthents

Typical Pedon for MLRA 115B

Bold silt loam, in a wooded area, of Sylvan-Bold silt loams, 20 to 30 percent slopes; about 1 mile southwest of the Southern Illinois University, Edwardsville campus in Madison County, Illinois; approximately 1,716 feet west and 1,270 feet south of the northeast corner of sec. 20, T. 4 N., R. 8 W.; USGS Wood River, IL. topographic quadrangle; lat. 38 degrees 47 minutes 10 seconds N. and long. 90 degrees 00 minutes 31 seconds W.

A—0 to 5 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; slightly effervescent; slightly alkaline; clear smooth boundary.

AC—5 to 12 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular and weak fine subangular blocky structure; friable; common dark brown (10YR 3/3) fillings along root channels; slightly effervescent; slightly alkaline; clear smooth boundary.

C—12 to 60 inches; yellowish brown (10YR 5/4) silt loam; massive; very friable; strongly effervescent; moderately alkaline.

MLRA Series Range in Characteristics

Thickness of the solum: 3 to 12 inches
Thickness of loess: More than 6 feet
Particle-size control section: Contains between 12 and 18 percent clay and less than 10 percent total sand
Depth to carbonates: It commonly is calcareous throughout. Pedons which do not have carbonates in the upper 10 inches are not excluded.

Ap or A horizon:
Hue—10YR
Value—4 to 6 for the Ap horizon, and 3 or 4 for the A horizon
Chroma—2 to 6 for the Ap horizon, and 1 to 4 for the A horizon
Texture—silt loam

Some pedons have an AC horizon

C horizon:
Hue—10YR
Value—4 to 7
Chroma—2 to 8
Texture—silt loam

Bunkum Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Aquic Hapludalfs

Typical Pedon for MLRA 114

Bunkum silty clay loam, on a west-facing, severely eroded back slope, with a gradient of 9 percent; in a cultivated field at an elevation of about 510 feet above mean sea level; about 1 mile west of Smithton in St. Clair County, Illinois (map sheet Millstadt SE, IL.); approximately 1,740 feet south and 160 feet east of the center of sec. 29, T. 1 S., R. 8 W.; USGS Millstadt, IL. topographic quadrangle; lat. 38 degrees 24 minutes 47 seconds N. and long. 90 degrees 00 minutes 37 seconds W.

Ap—0 to 8 inches; mixed brown (10YR 4/3) and yellowish brown (10YR 5/4) silty clay loam, pale brown (10YR 6/3) dry; moderate very fine subangular blocky structure; friable; many very fine roots; common fine and medium constricted tubular pores; common fine rounded black (7.5YR 2.5/1) iron-manganese nodules with sharp boundaries; about 30 percent clay; neutral; abrupt smooth boundary.

Bt1—8 to 16 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine roots; few fine constricted tubular pores; common distinct brown (10YR 5/3) clay films on faces of peds; few fine distinct light brownish gray (10YR 6/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with sharp boundaries; about 34 percent clay; slightly acid; clear smooth boundary.

Bt2—16 to 26 inches; yellowish brown (10YR 5/4) silty clay loam; weak fine prismatic structure parting to weak fine and medium subangular blocky; firm; common very fine roots; few very fine constricted tubular pores; common distinct brown (10YR 4/3) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and

common fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common medium and coarse irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 31 percent clay; slightly acid; clear smooth boundary.

Btg1—26 to 32 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure parting to weak medium angular blocky; firm; few very fine roots; few fine and medium constricted tubular pores; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few fine distinct light olive brown (2.5Y 5/4) and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few medium and coarse irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 28 percent clay; moderately acid; clear smooth boundary.

Btg2—32 to 40 inches; light brownish gray (2.5Y 6/2) silt loam; weak coarse angular blocky structure; friable; few very fine roots; few fine and medium constricted tubular pores; few prominent dark grayish brown (10YR 4/2) clay films on vertical faces of peds; common medium and coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 26 percent clay; moderately acid; gradual smooth boundary.

CBg—40 to 58 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; few very fine roots; few fine and medium constricted tubular pores; few prominent dark grayish brown (10YR 4/2) clay films on vertical cleavage planes; few medium and coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 4/6) boundaries; about 21 percent clay; slightly acid; abrupt smooth boundary.

2CB—58 to 82 inches; brown (7.5YR 5/4) silt loam; massive; friable; few fine and medium constricted tubular pores; few fine distinct pinkish gray (7.5YR 6/2) iron depletions in the matrix; few medium rounded very dark brown (7.5YR 2.5/3) iron-manganese concretions with clear strong brown (7.5YR 4/6) boundaries; about 25 percent clay and 8 percent sand; slightly acid.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: 24 to 60 inches
Thickness of loess: Typically 24 to about 60 inches

Ap horizon, and A and E horizons, where present:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 to 4
Texture—silt loam or silty clay loam

Bt and Btg horizons:
Hue—10YR, 2.5Y, or less commonly 5Y
Value—4 to 6
Chroma—1 to 4
Texture—silty clay loam or silt loam

BCg and CBg horizons:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—silt loam

2CB horizon, and 2C horizon, where present:
Hue—7.5YR, 10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—silt loam

515C2—Bunkum silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Bunkum and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that have a thicker loess mantle
* Soils that contain more clay in the subsoil
* Areas of moderately well drained soils

Dissimilar soils:
* Wakeland soils in small upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

515C3—Bunkum silty clay loam, 5 to 10 percent slopes, severely eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Bunkum and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that have a thinner loess mantle
* Soils that contain more clay in the subsoil
* Areas of moderately well drained soils

Dissimilar soils:
* Wakeland soils in small upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

515D3—Bunkum silty clay loam, 10 to 18 percent slopes, severely eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Bunkum and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that have a thinner loess mantle
* Soils that contain more clay in the subsoil
* Areas of moderately well drained soils

Dissimilar soils:
* Wakeland soils in upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

897D3—Bunkum-Atlas silty clay loams, 10 to 18 percent slopes, severely eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material:
* Bunkum—Loess
* Atlas—Till

Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Bunkum and similar soils: 50 percent
Atlas and similar soils: 40 percent
Dissimilar soils: 10 percent

Similar soils:
* Areas of moderately eroded soils
* Soils that contain a concentration of exchangeable sodium in the subsoil

Dissimilar soils:
* Well drained Hickory soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

884C3—Bunkum-Coulterville silty clay loams, 5 to 10 percent slopes, severely eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

*Drainage:*Somewhat poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Bunkum and similar soils: 50 percent
Coulterville and similar soils: 40 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that have a paleosol in the subsoil
* Areas of less sloping soils
* Areas of moderately well drained soils

Dissimilar soils: Wakeland soils in small upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Caseyville Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs

Typical Pedon for MLRA 115B

Caseyville silt loam, nearly level in a cultivated field, at an elevation of about 580 feet above mean sea level; about 3 miles northwest of Millstadt in St. Clair County, Illinois (map sheet Millstadt NW, IL.); approximately 105 feet south and 180 feet west of the northeast corner of sec. 32, T. 1 N., R. 9 W.; USGS Millstadt, IL. topographic quadrangle; lat. 38 degrees 29 minutes 53 seconds N. and long. 90 degrees 6 minutes 40 seconds W.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; many very fine and few fine roots; few fine rounded black (7.5YR 2.5/1) iron-manganese nodules with sharp boundaries; about 21 percent clay; neutral; clear smooth boundary.

Eg—7 to 12 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; weak medium platy structure parting to weak fine subangular blocky; friable; common very fine and few fine roots; few fine distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with sharp boundaries; about 20 percent clay; moderately acid; clear smooth boundary.

BE—12 to 16 inches; brown (10YR 5/3) silty clay loam; moderate fine subangular blocky structure; firm; common very fine roots; common distinct very pale brown (10YR 8/2, dry) clay depletions on

faces of peds; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with sharp boundaries; about 28 percent clay; moderately acid; clear smooth boundary.

Bt1—16 to 23 inches; brown (10YR 4/3) silty clay loam; strong medium angular blocky structure; firm; common very fine roots; few distinct very pale brown (10YR 8/2, dry) clay depletions on faces of peds in the upper part; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine rounded black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 32 percent clay; strongly acid; clear smooth boundary.

Bt2—23 to 36 inches; brown (10YR 5/3) silty clay loam; moderate fine prismatic structure parting to moderate medium angular blocky; firm; common very fine roots primarily along vertical faces of peds; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine faint grayish brown (10YR 5/2) iron depletions and common fine and medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 31 percent clay; strongly acid; gradual smooth boundary.

Bt3—36 to 54 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots primarily along vertical faces of peds; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine faint light brownish gray (10YR 6/2) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium and coarse rounded black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 30 percent clay; moderately acid; clear smooth boundary.

BCtg—54 to 62 inches; light brownish gray (2.5Y 6/2) silt loam; weak medium prismatic structure; friable; few very fine roots; few distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; common fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 24 percent clay; slightly acid; gradual smooth boundary.

CBg—62 to 80 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; very few distinct dark grayish brown (10YR 4/2) clay films lining root channels; common fine and medium prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; common medium and coarse irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; about 20 percent clay; neutral.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: 40 to 76 inches
Depth to carbonates: More than 60 inches, where present
Thickness of loess: More than 80 inches
Particle-size control section: Averages 27 to 35 percent clay and less than 7 percent sand

Ap horizon:
Hue—10YR
Value—4 to 6 (6 or 7 dry)
Chroma—1 or 2
Texture—silt loam

Undisturbed areas have A horizons 2 to 5 inches in thickness with a color value of 3.

Eg or E horizon:
Hue—10YR
Value—4 to 6 (6 or 7 dry)
Chroma—2, and less commonly chroma of 1 to 3
Texture—silt loam

Some pedons have an EB horizon.

Bt horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 4
Texture—dominantly silty clay loam, but is silt loam in the lower part of some pedons

Some pedons have a BC horizon

CBg, Cg or C horizon:
Hue—7.5YR, 10YR, 2.5Y, or 5Y
Value—5 or 6
Chroma—1 to 4
Texture—silt loam

267A—Caseyville silt loam, 0 to 2 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Caseyville and similar soils: 100 percent

Similar soils:
* Soils that contain more clay in the subsoil
* Areas of poorly drained soils
* Areas of moderately well drained soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

267B—Caseyville silt loam, 2 to 5 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Caseyville and similar soils: 100 percent

Similar soils:
* Soils that contain more clay in the subsoil
* Areas of poorly drained soils
* Areas of moderately well drained soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Coffeen Series

Taxonomic Class: Coarse-silty, mixed, superactive, mesic Fluvaquentic Hapludolls

Typical Pedon for MLRA 114

Coffeen silt loam, nearly level in a cultivated field, at an elevation of about 390 feet above mean sea level; about 0.5 mile southeast of Modoc in Randolph County; Illinois State Plane Coordinates 503,200 feet north and 538,150 feet east (Illinois West Zone), T. 5 S., R. 8 W.; USGS Prairie du Rocher, IL.- MO. topographic quadrangle; lat. 38 degrees 2 minutes 55 seconds N. and long. 90 degrees 2 minutes 5 seconds W.

Ap—0 to 10 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; slightly acid; abrupt smooth boundary.

Bw—10 to 21 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; slightly acid; clear smooth boundary.

Bg1—21 to 26 inches; dark grayish brown (10YR 4/2) silt loam; weak medium subangular blocky structure; friable; few medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; moderately acid; clear smooth boundary.

Bg2—26 to 33 inches; grayish brown (10YR 5/2) silt loam; moderate medium subangular blocky structure; friable; dark grayish brown (10YR 4/2) coatings on faces of peds; common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; moderately acid; clear smooth boundary.

Bg3—33 to 39 inches; grayish brown (10YR 5/2) silt loam; weak medium subangular blocky structure; friable; common fine prominent strong brown

(7.5YR 5/6) masses of iron accumulation in the matrix; moderately acid; clear smooth boundary.

BCg—39 to 47 inches; light brownish gray (10YR 6/2) silt loam; weak medium subangular blocky structure and massive; friable; common fine distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; slightly acid; gradual smooth boundary.

Cg—47 to 60 inches; gray (10YR 6/1) silt loam; massive; friable; many fine distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; slightly acid.

MLRA Series Range in Characteristics

Depth to the base of soil development: Commonly 30 to 50 inches but ranges to 64 inches
Thickness of the mollic epipedon: 10 to 18 inches
Depth to buried soil: Below a depth of 50 inches, where present
Particle-size control section: Averages 12 to 18 percent clay

A horizon:
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 to 3
Texture—silt loam

Some pedons have an AB horizon

B horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 or 3
Texture—silt loam

C horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 7
Chroma—1 to 3
Texture—silt loam, or is stratified silt loam, loam, or sandy loam

3428A—Coffeen silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Alluvium
Flooding frequency: Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Coffeen *and similar soils:* 100 percent

Similar soils:
* Soils that have a light-colored surface layer
* Soils that contain more clay throughout

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Colp Series

Taxonomic Class: Fine, smectitic, mesic Aquertic Chromic Hapludalfs

Typical Pedon for MLRA 114

Colp silt loam, nearly level in a cultivated field, at an elevation of about 420 feet above mean sea level; about 4 miles south and 2 miles east of Hecker in Monroe County, Illinois; approximately 1,095 feet east and 110 feet north of the center of sec. 27, T. 3 S., R. 8 W.; USGS Red Bud, IL. topographic quadrangle; lat. 38 degrees 14 minutes 38 seconds N. and long. 89 degrees 58 minutes 2 seconds W.

Ap—0 to 8 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; common very fine roots; few fine continuous tubular pores; few fine and medium rounded black (5YR 2.5/1) iron-manganese nodules with sharp boundaries; 21 percent clay; neutral; abrupt smooth boundary.

E—8 to 12 inches; light brownish gray (10YR 6/2) silt loam, very pale brown (10YR 8/2) dry; weak fine subangular blocky structure parting to moderate fine granular; friable; few very fine roots; few very fine continuous tubular pores; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium rounded black (5YR 2.5/1) iron-manganese nodules with sharp boundaries; 19 percent clay; moderately acid; abrupt smooth boundary.

2Bt1—12 to 17 inches; yellowish brown (10YR 5/4) silty clay; weak fine prismatic structure parting to moderate fine angular blocky; firm; few very fine roots; common prominent very pale brown (10YR 8/2, dry) clay depletions on faces of peds; many faint brown (10YR 5/3) clay films on faces of peds; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium rounded black (5YR 2.5/1) iron-manganese nodules with sharp boundaries; 46 percent clay; very strongly acid; clear smooth boundary.

2Bt2—17 to 23 inches; yellowish brown (10YR 5/4) silty clay; moderate medium prismatic structure parting to moderate medium angular blocky; very firm; few very fine roots; many faint brown (10YR 5/3) clay films on faces of peds; few fine distinct light brownish gray (10YR 6/2) iron depletions; common fine and medium rounded black (5YR 2.5/1) iron-manganese nodules with sharp boundaries; 48 percent clay; very strongly acid; gradual smooth boundary.

2Bt3—23 to 30 inches; yellowish brown (10YR 5/4) silty clay; moderate medium prismatic structure parting to moderate medium angular blocky; very firm; few very fine roots; common faint brown (10YR 5/3) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (5YR 2.5/1) iron-manganese nodules with sharp boundaries; 47 percent clay; very strongly acid; gradual smooth boundary.

2Bt4—30 to 37 inches; yellowish brown (10YR 5/4) clay; moderate medium prismatic structure parting to moderate medium angular blocky; very firm; few very fine roots; common faint brown (10YR 5/3) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded dark reddish brown (5YR 2.5/2) iron-manganese nodules with clear yellowish red (5YR 4/6) boundaries; 61 percent clay; very strongly acid; clear smooth boundary.

2Bt5—37 to 48 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; common distinct grayish brown (10YR 5/2) clay films on faces of peds; few prominent black (N 2.5/0) iron-manganese coatings lining root channels; common medium faint light brownish gray (10YR 6/2) iron depletions and many medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded dark reddish brown (5YR 2.5/2) iron-manganese nodules with clear yellowish red (5YR 4/6) boundaries; 37 percent clay; very strongly acid; abrupt smooth boundary.

2Btg1—48 to 55 inches; light brownish gray (2.5Y 6/2) silty clay loam; weak medium prismatic structure parting to moderate medium angular blocky; friable; few very fine roots; many distinct grayish brown (10YR 5/2) clay films on faces of peds and lining root channels; few prominent black (N 2.5/0) iron-manganese coats lining root channels; common fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (5YR 2.5/1) iron-manganese nodules with clear yellowish red (5YR 4/6) boundaries on vertical faces of peds; 36 percent clay; moderately acid; abrupt smooth boundary.

2Btg2—55 to 70 inches; light brownish gray (2.5Y 6/2) silty clay; weak medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; many distinct grayish brown (10YR 5/2) clay films on faces of peds and lining root channels; common fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; many fine and medium irregular black (5YR 2.5/1) iron-manganese nodules with clear yellowish red (5YR 4/6) boundaries on vertical faces of peds; 43 percent clay; moderately acid; clear smooth boundary.

2BCtkg—70 to 80 inches; grayish brown (2.5Y 5/2) silty clay; weak medium prismatic structure parting to moderate fine and medium angular blocky; very firm; common distinct dark grayish brown (2.5Y 4/2) clay films on faces of peds; common prominent reddish brown (5YR 4/4) iron-manganese coatings lining channels and pores; few fine and medium irregular black (5YR 2.5/1) iron-manganese nodules with clear yellowish red (5YR 4/6) boundaries; common fine and medium irregular white (10YR 8/1) carbonate nodules with sharp boundaries; slightly effervescent in the matrix; slightly alkaline.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: More than 50 inches

Thickness of loess or other silty material: 0 to 20 inches

Particle-size control section: Averages 35 to 50 percent clay and less than 15 percent sand, but some subhorizons contain 50 to about 60 percent clay

Depth to carbonates: In the lower part of the argillic horizon in some pedons and typically in the C horizon

Ap or A horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry), and 3 for some thin A horizons
Chroma—1 to 4
Texture—silt loam, but includes silty clay loam in some eroded pedons

E horizon, where present:
Hue—10YR
Value—5 or 6 (6 to 8 dry)
Chroma—2 to 4
Texture—silt loam

Some pedons have a thin silt loam or silty clay loam BE horizon or Bt horizon formed in the upper silty material.

2Bt horizon:
Hue—10YR, and less commonly 7.5YR or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—silty clay loam or silty clay, but some subhorizons are clay or clay loam, and some pedons contain thin strata of silt loam, loam, or fine sandy loam in the lower part

2Btg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—same as the 2Bt horizon

The 2BCtkg, 2BC or 2BCg horizon has colors and textures similar to those for the 2Bt or 2Btg horizon

2C or 2Cg horizon, where present:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—1 to 8
Texture—silty clay loam or silty clay, and is stratified in some pedons

8122C—Colp silty clay loam, 5 to 10 percent slopes, severely eroded, occasionally flooded

Setting

Landform: Lake Plain
Position on Landform: Side slope

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Lacustrine deposits
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Colp and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Areas of somewhat poorly drained soils
* Areas of moderately eroded soils
Dissimilar soils:
* Petrolia soils in drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

8122D—Colp silty clay loam, 10 to 18 percent slopes, severely eroded, occasionally flooded

Setting

Landform: Lake Plain
Position on Landform: Sideslope

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Lacustrine deposits
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Colp and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Areas of well drained soils
* Areas of moderately eroded soils
Dissimilar soils:
* Petrolia soils in drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Coulterville Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Aeric Epiaqualfs

Typical Pedon for MLRA 114

Coulterville silt loam, on an eroded southeast-facing concave slope, of 3 percent in a cultivated field at an elevation of about 467 feet above mean sea level; about 0.5 mile southwest of Hecker, in Monroe County, Illinois (map sheet Paderborn SE, IL.); approximately 1,320 feet west and 2,100 feet north of the southeast corner of sec. 5, T. 3 S., R. 8 W.; USGS Paderborn, IL. topographic quadrangle; lat. 38 degrees 18 minutes 2 seconds N. and long. 90 degrees 00 minutes 11 seconds W.

Ap—0 to 7 inches; mixed dark grayish brown (10YR 4/2) and brown (10YR 4/3) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; common very fine and few fine roots; few fine rounded yellowish red (5YR 5/8) masses of iron-manganese accumulation and common fine rounded very dark gray (7.5YR 3/1) iron-manganese nodules; 2 percent exchangeable sodium; 19 percent clay; moderately acid; abrupt smooth boundary.

Btn—7 to 11 inches; brown (10YR 4/3) silty clay loam; moderate fine subangular blocky structure; friable; common very fine and few fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few fine faint grayish brown (10YR 5/2) iron depletions and common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; few fine rounded yellowish red (5YR 5/8) masses of iron-manganese accumulation and few fine rounded very dark gray (7.5YR 3/1) iron-manganese nodules; 5 percent exchangeable sodium; 36 percent clay; neutral; clear smooth boundary.

Btng1—11 to 15 inches; gray (5Y 6/1) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; common very fine and few fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; few fine rounded yellowish red (5YR 5/8) masses of iron-manganese accumulation and common fine rounded very dark gray (7.5YR 3/1) iron-manganese nodules; 9 percent exchangeable sodium; 32 percent clay; neutral; clear smooth boundary.

Btng2—15 to 23 inches; gray (5Y 6/1) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; few very fine roots; common faint light gray (10YR 7/1, dry) clay depletions on faces of peds, common distinct grayish brown (10YR 5/2) clay films on faces of peds, and few distinct very dark grayish brown (10YR 3/2) clay films in root channels; common medium prominent brown (7.5YR 4/4) masses of iron accumulation in the matrix; common fine and medium rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation and common fine rounded black (10YR 2/1) iron-manganese nodules; very dark grayish brown (10YR 3/2) vertical krotovinas; 12 percent exchangeable sodium; 29 percent clay; slightly effervescent throughout; moderately alkaline; clear smooth boundary.

Btkng1—23 to 28 inches; gray (5Y 5/1) silt loam; moderate medium subangular blocky structure; friable; few very fine roots; common faint light gray (10YR 7/1, dry) clay depletions on faces of peds, few faint grayish brown (10YR 5/2) clay films on faces of peds, and few distinct very dark grayish brown (10YR 3/2) clay films in root channels; common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; common medium irregular strong brown (7.5YR 4/6) iron-manganese nodules and few medium irregular carbonate nodules; 14 percent exchangeable sodium; 24 percent clay; slightly effervescent; moderately alkaline; clear smooth boundary.

Btkng2—28 to 33 inches; light olive gray (5Y 6/2) silt loam; weak medium subangular blocky structure; friable; few very fine roots; common faint light gray (10YR 7/1, dry) clay depletions on faces of peds, few faint grayish brown (10YR 5/2) clay films on faces of peds, and few prominent black (10YR 2/1) iron-manganese stains on faces of peds; common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; common fine and medium irregular dark brown (7.5YR 3/3) masses of iron-manganese accumulation and few medium irregular carbonate nodules; 10 percent exchangeable sodium; 24 percent clay; slightly effervescent; moderately alkaline; clear smooth boundary.

Btkn—33 to 39 inches; olive (5Y 5/3) silt loam; weak medium subangular blocky structure; friable; few faint grayish brown (10YR 5/2) clay films on faces of peds; common medium distinct light brownish gray (2.5Y 6/2) iron depletions and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; many medium irregular dark brown (7.5YR 3/2) masses of iron-manganese accumulation and few medium irregular carbonate nodules; 8 percent exchangeable sodium; 21 percent clay; slightly effervescent; moderately alkaline; clear smooth boundary.

BCkn—39 to 56 inches; brown (10YR 5/3) silt loam; weak medium prismatic structure parting to weak medium subangular blocky; friable; few prominent black (10YR 2/1) manganese stains on vertical faces of peds and in root channels; common prominent white (10YR 8/1) carbonate coatings on vertical faces of peds; common medium distinct light brownish gray (2.5Y 6/2) iron depletions and common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; common fine and medium irregular dark brown (7.5YR 3/2) masses of iron-manganese accumulation; 6 percent exchangeable sodium; 19 percent clay; slightly effervescent; moderately alkaline; clear smooth boundary.

Ckn—56 to 68 inches; brown (10YR 5/3) silt loam; massive; friable; few prominent white (10YR 8/1) carbonate coatings along faces of cleavage planes; common medium prominent strong brown (7.5YR 4/6) and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules; 5 percent exchangeable sodium; 16 percent clay; slightly effervescent; moderately alkaline; gradual smooth boundary.

2C—68 to 83 inches; brown (7.5YR 5/4) silt loam; massive; friable; few fine tubular pores; common medium prominent light brownish gray (2.5Y 6/2) iron depletions and common fine distinct strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; few fine rounded dark brown (7.5YR 3/3) masses of iron-manganese accumulation; about 10 percent sand; slightly alkaline.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: 35 to 70 inches

Depth to carbonates: In the middle to lower parts of the argillic and in strata below the argillic horizon, but are not everywhere present

Ap or A horizon:
- Hue—10YR
- Value—3 or 4 (5 or 6 dry)
- Chroma—2 or 3
- Texture—silt loam

E horizon, where present:
- Hue—10YR
- Value—4 to 6
- Chroma—2 or 3
- Texture—silt loam

Bt horizon:
- Hue—10YR, 2.5Y, or 5Y
- Value—4 to 6
- Chroma—1 to 4
- Texture—dominantly silty clay loam, but includes silt loam or silty clay in some subhorizons

Some pedons have a 2Bt or 2BC horizon formed in loamy material with a low content of sand

BC horizon:
- Hue—10YR, 2.5Y, or 5Y
- Value—5 or 6
- Chroma—1 to 3
- Texture—silt loam or silty clay loam

C or 2C horizon:
- Hue—7.5YR, 10YR, 2.5Y, or 5Y
- Value—5 to 7
- Chroma—1 to 4
- Texture—silt loam, loam, or silty clay loam

Some pedons have a C horizon that is underlain by buried horizons of older horizons. These horizons are commonly silt loam, loam, silty clay loam, or clay loam.

880B2—Coulterville-Darmstadt silt loams, 2 to 5 percent slopes, eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage:Somewhat poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Coulterville and similar soils: 50 percent
Darmstadt and similar soils: 40 percent
Dissimilar soils: 10 percent

Similar soils:
* Areas of severely eroded soils
* Soils that do not contain a concentration of exchangeable sodium in the subsoil

Dissimilar soils:
* Oconee soils that do not have a natric horizon

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* “Agronomy” section
* “Forestland Management and Productivity” section
* “Wildlife Habitat” section
* “Engineering” section
* “Soil Properties” section

878C3—Coulterville-Grantfork silty clay loams, 5 to 10 percent slopes, severely eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

*Drainage:*Somewhat poorly drained
Dominant parent material:
* Coulterville—Loess
* Grantfork—Pedisediment

Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

Composition

Coulterville and similar soils: 50 percent
Grantfork and similar soils: 40 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that have a natric horizon
* Areas of moderately eroded soils

Dissimilar soils:
* Wakeland soils in small upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* “Agronomy” section
* “Forestland Management and Productivity” section
* “Wildlife Habitat” section
* “Engineering” section
* “Soil Properties” section

Cowden Series

Taxonomic Class: Fine, smectitic, mesic Vertic Albaqualfs

Typical Pedon for MLRA 114

Cowden silt loam, nearly level in a cultivated field, at an elevation of about 665 feet above mean sea level; about 2 miles northwest of Butler in Montgomery County, Illinois; approximately 1,980 feet west and 30 feet north of the southeast corner of sec. 8, T. 9 N., R. 4 W.; USGS Butler, IL. topographic quadrangle; lat. 39 degrees 13 minutes 55 seconds N. and long. 89 degrees 33 minutes 18 seconds W.

Ap—0 to 8 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; weak fine granular structure; friable; common very fine and few fine roots; few fine continuous tubular pores; few fine irregular dark brown (10YR 3/3) masses of iron-manganese accumulation; moderately acid; abrupt smooth boundary.

Eg1—8 to 14 inches; dark gray (10YR 4/1) silt loam, gray (10YR 6/1) dry; weak medium platy structure parting to weak fine subangular blocky; friable; few very fine roots; common fine and medium tubular and vesicular pores; many distinct very dark gray (10YR 3/1) organic coatings on faces of peds and filling pores; few fine irregular dark brown (10YR 3/3) masses of iron-manganese accumulation; moderately acid; clear smooth boundary.

Eg2—14 to 19 inches; gray (10YR 5/1) silt loam, light gray (10YR 7/1) dry; weak medium platy structure parting to weak fine subangular blocky; friable; few very fine roots; common fine and medium continuous tubular pores; common fine faint grayish brown (10YR 5/2) masses of iron accumulation in the matrix; common fine irregular dark brown (10YR 3/3) masses of iron-manganese accumulation; strongly acid; abrupt smooth boundary.

Btg1—19 to 26 inches; grayish brown (10YR 5/2) silty clay loam; moderate fine and medium prismatic structure parting to moderate medium angular and

subangular blocky; firm; common very fine roots; few fine continuous tubular pores; common distinct light gray (10YR 7/1, dry) clay depletions on faces of peds in the upper 2 inches; many prominent very dark gray (10YR 3/1) organo-clay films on faces of peds; few fine distinct yellowish brown (10YR 5/4 and 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) iron-manganese nodules with sharp boundaries; strongly acid; clear smooth boundary.

Btg2—26 to 43 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium and coarse angular blocky; firm; few very fine roots; many prominent very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; many medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) and dark reddish brown (5YR 3/4) iron-manganese nodules with sharp boundaries; moderately acid; gradual smooth boundary.

Btg3—43 to 50 inches; light brownish gray (10YR 6/2) silty clay loam; weak coarse angular blocky structure; firm; few very fine roots; few fine vesicular and tubular pores; few prominent black (10YR 2/1) organic coatings lining root channels and pores; common distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; common coarse prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few medium and coarse irregular black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; slightly acid; gradual smooth boundary.

BCg—50 to 58 inches; gray (10YR 6/1) silt loam; weak medium and coarse angular blocky structure; friable; few very fine roots; few fine vesicular and tubular pores; few prominent very dark gray (10YR 3/1) organic coatings lining root channels and pores; few distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; common coarse prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine and medium irregular black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; neutral; clear smooth boundary.

Cg—58 to 69 inches; grayish brown (10YR 5/2) silt loam; massive, friable; few fine and medium vesicular and tubular pores; few prominent very dark gray (10YR 3/1) organic coatings lining root channels and pores; many medium and coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (5YR 2.5/1) iron-manganese nodules with diffuse yellowish red (5YR 5/6) boundaries; about 8 percent sand; neutral; clear smooth boundary.

2Btgb—69 to 80 inches; grayish brown (10YR 5/2) silty clay loam; moderate fine and medium prismatic structure parting to weak medium angular blocky, firm; common medium and coarse vesicular and tubular pores; few prominent very dark gray (10YR 3/1) organic coatings lining root channels and pores; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine and medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium and coarse irregular black (5YR 2.5/1) and yellowish red (5YR 4/6) iron-manganese nodules with clear boundaries; about 15 percent sand and 2 percent pebbles; neutral.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: 40 to 74 inches
Thickness of loess: 55 to about 80 inches
Particle-size control section: Averages 35 to 42 percent clay. Some pedons have one or more thin subhorizons that have as much as 45 percent clay.

Ap horizon:
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 or 2
Texture—silt loam

Eg horizon:
Hue—10YR
Value—4 to 6 (6 or 7 dry)
Chroma—1 or 2
Texture—silt loam

Some pedons have a B/Eg horizon less than 3 inches in thickness

Btg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—typically silty clay loam, but some subhorizons are silty clay, and the lower part is silt loam in some pedons

Cg horizon and BCg horizon, where present:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silt loam

2Cg and/or 2Ab or 2Bb horizon, where present:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—2 to 6
Chroma—0 to 2

Texture—silt loam, loam, silty clay loam, or clay loam

112A—Cowden silt loam, 0 to 2 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Cowden and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that are somewhat poorly drained
* Soils with a light-colored surface horizon
* Soils that do not have an abrupt textural change
Dissimilar soils:
* Piasa soils that have a natric horizon
* Small areas of depressional soils that remain wet for periods that extend into the growing season

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

993A—Cowden-Piasa silt loams, 0 to 2 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Cowden and similar soils: 50 percent
Piasa and similar soils: 40 percent
Dissimilar soils: 10 percent

Similar soils:
* Areas of somewhat poorly drained soils
Dissimilar soils:
* Small areas of depressional soils that remain wet for periods that extend into the growing season

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Darmstadt Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Albic Natraqualfs

Typical Pedon for MLRA 114

Darmstadt silt loam, on a nearly level summit, in a cultivated field at an elevation of about 470 feet above mean sea level; about 2 miles south of Smithton in St. Clair County, Illinois (map sheet Freeburg SW, IL.); approximately 1,202 feet west and 84 feet south of the northeast corner of sec. 9, T. 2 S., R. 8 W.; USGS Freeburg, IL. topographic quadrangle; lat. 38 degrees 22 minutes 52 seconds N. and long. 89 degrees 59 minutes 7 seconds W.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak thick platy structure parting to weak very fine granular; friable; many very fine roots; few fine continuous tubular pores; few fine rounded black (10YR 2/1) iron-manganese nodules with sharp

boundaries; 1 percent exchangeable sodium; neutral; abrupt smooth boundary.

E—8 to 11 inches; light brownish gray (10YR 6/2) and grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; weak thick platy structure parting to weak fine subangular blocky; friable; common very fine roots; few fine constricted tubular pores; many fine and medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; 4 percent exchangeable sodium; neutral; abrupt smooth boundary.

Btn1—11 to 16 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic structure parting to moderate fine and medium angular blocky; firm; many very fine roots; few faint grayish brown (10YR 5/2) clay films on faces of peds; common medium faint grayish brown (10YR 5/2) iron depletions and common medium prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; and few medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; 7 percent exchangeable sodium; very strongly acid; gradual smooth boundary.

Btn2—16 to 21 inches; pale brown (10YR 6/3) silty clay loam; moderate medium prismatic structure parting to strong medium angular blocky; firm; common very fine roots; common distinct gray (10YR 5/1) clay films on faces of peds; many fine faint grayish brown (10YR 5/2) iron depletions, and many fine distinct brownish yellow (10YR 6/6) and many fine prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation and few medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; 12 percent exchangeable sodium; moderately acid; gradual smooth boundary.

Btn3—21 to 27 inches; pale brown (10YR 6/3) and light brownish gray (10YR 6/2) silty clay loam; moderate coarse prismatic structure; firm; few very fine roots; few distinct gray (10YR 5/1) clay films on faces of peds; many coarse prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few medium irregular very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; 17 percent exchangeable sodium; slightly acid; gradual smooth boundary.

Btng1—27 to 35 inches; light brownish gray (10YR 6/2) silty clay loam; weak coarse prismatic structure; firm; few very fine roots; common fine vesicular pores; few distinct gray (10YR 5/1) clay films on vertical faces of peds and few distinct black (10YR 2/1) and very dark gray (10YR 3/1) clay films lining root channels and pores; few medium faint dark gray (10YR 4/1) iron depletions, and few medium distinct dark yellowish brown (10YR 4/4) and light yellowish brown (10YR 6/4) masses of iron accumulation in the matrix; common coarse irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 4/6) boundaries; 20 percent exchangeable sodium; neutral; clear smooth boundary.

Btng2—35 to 39 inches; light gray (10YR 7/1) silty clay loam; weak coarse prismatic structure; friable; few very fine roots; few very fine vesicular pores; few distinct gray (10YR 5/1) clay films on vertical faces of peds; few coarse prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium irregular black (7.5YR 2.5/1) and common coarse irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; 25 percent exchangeable sodium; slightly alkaline; abrupt smooth boundary.

Cng1—39 to 44 inches; light gray (10YR 7/1) silt loam; massive; friable; few very fine roots; few very fine vesicular pores; many coarse prominent yellowish brown (10YR 5/6 and 5/8) masses of iron accumulation in the matrix; common medium and coarse irregular black (7.5YR 2.5/1) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation; few medium irregular white (10YR 8/1) carbonate nodules; 25 percent exchangeable sodium; slightly effervescent; slightly alkaline; abrupt smooth boundary.

Cng2—44 to 62 inches; light gray (10YR 7/1) silt loam; massive; friable; few fine tubular and vesicular pores; few distinct very dark grayish brown (10YR 3/2) clay films lining root channels and pores; many coarse prominent yellowish brown (10YR 5/6 and 5/8) masses of iron accumulation in the matrix; few medium irregular black (7.5YR 2.5/1) and many medium and coarse irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 25 percent exchangeable sodium; slightly effervescent; moderately alkaline; gradual smooth boundary.

Cng3—62 to 80 inches; light gray (10YR 7/1) silt loam; massive; friable; few distinct very dark grayish brown (10YR 3/2) clay films lining root channels; many coarse prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (7.5YR 2.5/1) and common medium irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; moderately alkaline.

MLRA Series Range in Characteristics

Depth to the base of the natric horizon: Typically 35 to 50 inches, but ranges from 30 to 60 inches
Particle-size control section: Averages 27 to 35 percent clay and less than 10 percent sand. The maximum clay content in any subhorizon is 42 percent.

Ap horizon:
Hue—10YR
Value—3 to 5 (5 or 6 dry)
Chroma—2 or 3
Texture—silt loam, but includes silty clay loam in some severely eroded pedons

E horizon:
Hue—10YR
Value—5 or 6
Chroma—2
Texture—silt loam

In some eroded areas the E horizon has been mixed into the Ap horizon.

Btn and Btng horizons:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—2 to 6
Texture—dominantly silty clay loam, but may have thin subhorizons of silty clay, and grades to silt loam in the lower part in some pedons

Some pedons have a Bg, BC, 2Bt, 2Bg, or 2BC horizon in the lower part of the solum.

Cng or Cg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—5 to 7
Chroma—1 or 2
Texture—silt loam

Some pedons have 2Ab, 2Btb, and/or 2C horizons below a depth of 45 inches.

Darwin Series

Taxonomic Class: Fine, smectitic, mesic Fluvaquentic Vertic Endoaquolls

Typical Pedon for MLRA 115B

Darwin silty clay, on a nearly level flood plain, in a cultivated field at an elevation of about 423 feet above mean sea level; about 1 mile east of Mitchell in Madison County, Illinois; approximately 1,280 feet north and 60 feet east of the southwest corner of sec. 25, T. 4 N., R. 9 W.; USGS Wood River, IL.-MO. topographic quadrangle; lat. 38 degrees 45 minutes 52 seconds N. and long. 90 degrees 3 minutes 24 seconds W.

Ap1—0 to 3 inches; black (10YR 2/1) silty clay, dark gray (10YR 4/1) dry; moderate medium granular structure; firm; many very fine and few fine roots; neutral; abrupt smooth boundary.

Ap2—3 to 10 inches; black (10YR 2/1) silty clay, dark gray (10YR 4/1) dry; strong fine and medium angular blocky structure; very firm; common very fine and few fine roots; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; neutral; abrupt smooth boundary.

AB—10 to 16 inches; very dark gray (10YR 3/1) silty clay, dark gray (10YR 4/1) dry; moderate fine and medium angular blocky structure; very firm; common very fine and few fine roots; common faint very dark gray (10YR 3/1) pressure faces on faces of peds; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; slightly acid; clear smooth boundary.

Bg1—16 to 28 inches; dark gray (2.5Y 4/1) silty clay; weak medium prismatic structure parting to moderate fine and medium angular blocky; very firm; common very fine and few fine roots; many faint dark gray (2.5Y 4/1) pressure faces on faces of peds; common fine distinct olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; slightly acid; gradual smooth boundary.

Bg2—28 to 40 inches; dark gray (2.5Y 4/1) silty clay; moderate medium prismatic structure parting to strong fine and medium angular blocky; very firm; few very fine roots; many distinct dark gray (2.5Y 4/1) pressure faces on faces of peds; few fine distinct olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; slightly acid; gradual smooth boundary.

Bg3—40 to 52 inches; dark gray (5Y 4/1) silty clay; moderate medium prismatic structure parting to moderate fine and medium angular blocky; very firm; few very fine roots; many distinct dark gray (5Y 4/1) pressure faces on faces of peds; common fine prominent yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; slightly acid; gradual smooth boundary.

Bg4—52 to 62 inches; dark gray (5Y 4/1) silty clay; moderate coarse prismatic structure parting to moderate medium and coarse angular blocky; very firm; few very fine roots; many distinct dark gray (5Y 4/1) pressure faces on faces of peds; common fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR

4/6) masses of iron-manganese accumulation; neutral; gradual smooth boundary.

BCg—62 to 69 inches; gray (5Y 5/1) silty clay loam; weak coarse prismatic structure; firm; few very fine roots; common distinct very dark gray (2.5Y 3/1) organo-clay films on vertical faces of peds; common medium prominent yellowish brown (10YR 5/6) and few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; common fine and medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; neutral; clear smooth boundary.

Cg—69 to 80 inches; olive gray (5Y 5/2) silty clay loam; friable; few prominent very dark gray (2.5Y 3/1) organo-clay films lining root channels and filling vesicular pores; many medium and coarse prominent yellowish brown (10YR 5/6) and common fine and medium prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; common fine and medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; neutral.

MLRA Series Range in Characteristics

Depth to the base of soil development: 40 to more than 60 inches
Thickness of the mollic epipedon: 10 to 24 inches
Depth to carbonates: Some pedons contain carbonates in the lower part of the Bg horizon and in the Cg horizon.

A horizon:
Hue—10YR, 2.5Y, or neutral
Value—2 or 3 (4 or 5 dry)
Chroma—0 to 2
Texture—typically silty clay, but the range includes silty clay loam and clay

Bg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—3 to 6
Chroma—0 to 2
Texture—typically silty clay, but some pedons contain subhorizons of clay, and some pedons have subhorizons in the lower part that are silty clay loam

Cg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—typically silty clay loam, silty clay, or clay, but some pedons contain subhorizons of silt loam, and some pedons are stratified

2071L—Darwin-Urban land complex, 0 to 2 percent slopes, occasionally flooded, long duration

Setting

Landform: Flood Plain

Soil Properties and Qualities

Dominant parent material: Alluvium
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Darwin and similar soils: 50 percent
Urban land: 40 percent
Dissimilar soils: 10 percent

Similar soils:
* Areas of somewhat poorly drained soils
* Soils that contain more sand throughout

Dissimilar soils:
* Well drained Landes soils on natural levees

Urban land:
* Areas covered by buildings, dwellings, roads, streets, parking lots, and lawns and gardens

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

8071L—Darwin silty clay, 0 to 2 percent slopes, occasionally flooded, long duration

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Poorly drained
Dominant parent material: Alluvium
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Darwin and similar soils: 100 percent

Similar soils:
* Soils that contain less clay in the subsoil
* Soils that have a thinner dark surface layer
* Soils that contain more sand in the substratum

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

1071A—Darwin silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Very poorly drained
Dominant parent material: Alluvium
Flooding frequency: Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Darwin, undrained and similar soils: 100 percent

Similar soils:
* Soils with a thinner dark surface layer
* Soils that contain carbonates
* Soils that contain more sand in the substratum
* Soils that contain more or less clay in the subsoil

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Downsouth Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

Typical Pedon for MLRA 115B

Downsouth silt loam, on a northwest-facing 3 percent slope, on a convex summit in a cultivated field at an elevation of about 560 feet above mean sea level; about 1 mile south of Belleville along State Route 15 in St. Clair County, Illinois (map sheet French Village SE, IL.); approximately 600 feet south and 550 feet east of the northwest corner of sec. 19, T. 1 N., R. 8 W.; USGS French Village, IL. topographic quadrangle; lat. 38 degrees 31 minutes 30 seconds N. and long. 90 degrees 2 minutes 4 seconds W.

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; many very fine roots; few fine and medium continuous tubular pores; about 20 percent clay; neutral; abrupt smooth boundary.

E—9 to 13 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate thick platy structure parting to moderate medium granular; friable; common very fine roots; common fine and medium continuous tubular pores; few distinct light gray (10YR 7/2, dry) clay depletions and common distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; about 22 percent clay; slightly acid; clear smooth boundary.

Bt1—13 to 26 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine prismatic structure parting to strong fine subangular blocky; firm; common very fine roots; common fine and medium constricted tubular pores; few distinct light gray (10YR 7/2, dry) clay depletions and many distinct dark brown (10YR 3/3) clay films on faces of peds; few fine rounded strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 32 percent clay; moderately acid; clear smooth boundary.

Bt2—26 to 38 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium prismatic structure

parting to moderate fine and medium subangular blocky; firm; common very fine roots; few very fine and fine constricted tubular pores; many distinct dark brown (10YR 3/3) clay films on faces of peds; few fine distinct light brownish gray (10YR 6/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine irregular very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 30 percent clay; slightly acid; gradual smooth boundary.

Bt3—38 to 57 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic structure parting to weak medium subangular blocky; firm; few very fine roots; few very fine and fine constricted tubular pores; common distinct brown (10YR 4/3) clay films on faces of peds; common fine faint light brownish gray (10YR 6/2) iron depletions and many fine and medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 28 percent clay; slightly acid; gradual smooth boundary.

BCt—57 to 65 inches; brown (10YR 5/3) silt loam; weak medium and coarse subangular blocky structure; friable; few very fine roots; few very fine and fine tubular and vesicular pores; few distinct brown (10YR 4/3) clay films on faces of peds and lining root channels and pores; many fine and medium faint light grayish brown (10YR 6/2) iron depletions and common fine and medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 26 percent clay; neutral; gradual smooth boundary.

CB—65 to 96 inches; pale brown (10YR 6/3) silt loam; massive; friable; few very fine roots; many very fine to medium tubular and vesicular pores; few distinct brown (10YR 4/3) clay films lining small root channels and pores and very few prominent very dark grayish brown (10YR 3/2) organo-clay films lining large root channels and pores; common fine and medium faint light grayish brown (10YR 6/2) iron depletions and many fine and medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 20 percent clay; neutral.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: 42 to 70 inches
Thickness of loess: 80 inches or more
Particle-size control section: Averages 27 to 35 percent clay and sand content is less than 7 percent in all parts
Depth to carbonates: Below 60 inches, where present

Ap horizon:
Hue—10YR
Value—3 (5 dry)
Chroma—2 or 3
Texture—silt loam

In undisturbed areas the A horizon has color value of 2 or 3 (4 or 5 dry) and chroma of 1 or 2.

E horizon, where present:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam

Some pedons have an EB or BE horizon.

Bt and BC horizons:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—3 to 6 (2 to 6 in the lower part)
Texture—typically silty clay loam, but the lower part is silt loam in some pedons

CB or C horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—5 or 6
Chroma—1 to 4
Texture—silt loam

283B—Downsouth silt loam, 2 to 5 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit,

such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Downsouth and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Areas of somewhat poorly and/or well drained soils
* Soils that have a mollic epipedon
* Areas that are moderately eroded

Dissimilar soils:
* Small areas of poorly drained soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

283C2—Downsouth silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Downsouth and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Areas that are more or less eroded
* Areas of well drained soils

Dissimilar soils:
* Wakeland soils in small upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Drury Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Dystric Eutrochrepts

Typical Pedon for MLRA 115B

Drury silt loam, gently sloping in a cultivated field, at an elevation of about 465 feet above mean sea level; about 3 miles west of Maeystown in Monroe County, Illinois; approximately 2,380 feet southeast of intersection of Bluff Road and railroad crossing and 820 feet northeast of railroad tracks, parcel S. 701, C. 495, T. 3 S., R. 11 W.; USGS Selma, IL. topographic quadrangle; lat. 38 degrees 13 minutes 52 seconds N. and long. 90 degrees 16 minutes 54 seconds W.

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; common very fine and few fine roots; few fine continuous tubular pores; neutral; abrupt smooth boundary.

Bw1—7 to 12 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine subangular blocky structure; friable; few very fine and fine roots; few medium continuous tubular pores; many faint dark brown (10YR 3/3) organo-clay films on faces of peds and lining vertical tubular pores; neutral; clear smooth boundary.

Bw2—12 to 19 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine prismatic structure parting to moderate fine subangular blocky; friable; few very fine and fine roots; common fine continuous tubular pores; common faint dark brown (10YR 3/3) organo-clay films on faces of peds and lining vertical tubular pores; neutral; gradual smooth boundary.

Bw3—19 to 26 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium prismatic structure parting to moderate fine and medium subangular blocky; friable; few very fine and fine roots; common fine continuous tubular pores; common faint dark brown (10YR 3/3) organo-clay films on faces of peds and lining vertical tubular pores; neutral; gradual smooth boundary.

Bw4—26 to 36 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; few very fine and fine roots; common fine continuous tubular pores; few faint dark brown (10YR 3/3) organo-clay films on faces of peds and lining vertical tubular pores; neutral; gradual smooth boundary.

Bw5—36 to 43 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium prismatic structure parting to weak medium subangular blocky; very friable; few very fine roots; common fine continuous tubular pores; few faint dark brown (10YR 3/3) organo-clay films on faces of peds and lining vertical tubular pores; neutral; gradual smooth boundary.

C1—43 to 70 inches; dark yellowish brown (10YR 4/4) silt loam; massive; very friable; few very fine and fine continuous tubular pores; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine rounded black (N 2.5/0) masses of iron-manganese accumulation; neutral; gradual smooth boundary.

C2—70 to 80 inches; dark yellowish brown (10YR 4/4) silt loam; massive; friable; few very fine continuous pores; few fine rounded black (N 2.5/0) masses of iron-manganese accumulation; neutral.

MLRA Series Range in Characteristics

Depth to the base of soil development: Typically 30 to 40 inches, but ranges from 26 to 45 inches
Particle-size control section: Averages 18 to 25 percent clay
Depth to carbonates: Some pedons contain carbonates below a depth of 40 inches

Ap or A horizon:
Hue—10YR
Value—3 or 4 (5 or 6 dry)
Chroma—2 to 4
Texture—silt loam or silt

E horizon, where present:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam or silt

Bw horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6 in the upper part, and 2 to 6 in the lower part
Texture—silt loam

C horizon:
Hue—10YR
Value—3 to 6
Chroma—2 to 4
Texture—silt loam - Some pedons show evidence of stratification, most commonly below a depth of 45 inches. Strata are loam, silt loam, and very fine sandy loam.

Some pedons contain buried horizons that commonly are below a depth of 50 inches.

75B—Drury silt loam, 2 to 5 percent slopes

Setting

Landform: Alluvial Fan

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Slope alluvium
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Drury and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils with a dark surface layer
* Soils that contain carbonates
* Areas with more or less slope

Dissimilar soils:
* Wakeland soils in small drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

536—Dumps

Composition

Dumps: 85 percent
Dissimilar soils: 15 percent

Dumps:
*Areas of piles of industrial refuse, mine spoil and slag
Dissimilar soils:
* Small areas of Orthents, silty or Orthents, loamy, in border areas that have been cut and filled
*Lenzburg and Morristown soils in adjacent strip mines

866—Dumps, slurry

Composition

Dumps, slurry: 90 percent
Dissimilar soils: 10 percent

Dumps, slurry:
* Areas of refuse material that has settled out from slurry derived from coal preparation plants
Dissimilar soils:
* Small levees constructed from earthfill to contain the slurry

Dupo Series

Taxonomic Class: Coarse-silty over clayey, mixed over smectitic, superactive, nonacid, mesic Aquic Udifluvents

Typical Pedon for MLRA 114/115B

Dupo silt loam, nearly level in a cultivated field, at an elevation of about 390 feet above mean sea level; about 2.5 miles west of Modoc in Randolph County; Illinois State Plane Coordinates 506,150 feet north and 526,600 feet east (Illinois West Zone), T. 5 S., R. 9 W.; USGS Prairie Du Rocher, IL.-MO. topographic quadrangle; lat. 38 degrees 3 minutes 20 seconds N. and long. 90 degrees 4 minutes 28 seconds W.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; very friable; many very fine and fine roots; few very fine continuous tubular pores; few fine rounded strong brown (7.5YR 5/6) masses of iron-manganese accumulation; slightly alkaline; abrupt smooth boundary.

C1—9 to 17 inches; brown (10YR 5/3) silt loam; massive; very friable; common very fine and fine roots; few very fine continuous tubular pores; common fine faint grayish brown (10YR 5/2) iron depletions and common fine faint yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; slightly alkaline; clear smooth boundary.

C2—17 to 25 inches; brown (10YR 5/3) silt loam; massive; very friable; common very fine and fine roots; common very fine and fine continuous tubular pores; common very dark grayish brown (10YR 3/2) worm casts; many medium faint grayish brown (10YR 5/2) iron depletions and many medium faint dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; neutral; abrupt smooth boundary.

2Ab1—25 to 39 inches; very dark gray (10YR 3/1) silty clay; moderate medium prismatic structure parting to strong fine angular blocky; very firm; few very fine and fine roots; common fine constricted tubular pores; common distinct dark yellowish brown (10YR 4/4) clay depletions on vertical faces of prisms; common fine distinct dark yellowish brown (10YR 4/4) and common medium prominent yellowish red (5YR 4/6) masses of iron accumulation in the matrix; neutral; clear smooth boundary.

2Ab2—39 to 59 inches; very dark gray (10YR 3/1) silty clay; moderate coarse prismatic structure parting to moderate medium angular blocky; very firm; few very fine and fine roots; few fine and medium constricted tubular pores; few faint dark yellowish brown (10YR 4/4) clay depletions on vertical faces of prisms; common faint very dark gray (10YR 3/1) pressure faces on faces of peds; common fine distinct dark yellowish brown (10YR 4/4) and few medium prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; neutral; gradual smooth boundary.

2Bgb—59 to 75 inches; dark gray (10YR 4/1) silty clay; weak coarse prismatic structure; very firm; few very fine and fine roots; common distinct dark gray (10YR 4/1) pressure faces on faces of peds; common fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; slightly alkaline; gradual smooth boundary.

2Cg—75 to 95 inches; gray (2.5Y 5/1) clay; massive; very firm; common shiny dark gray (2.5Y 4/1) nonintersecting slickensides; common fine medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; neutral.

MLRA Series Range in Characteristics

Depth to the 2Ab horizon: 20 to 40 inches
Reaction of the soil: Neutral or slightly acid, but ranges from moderately acid to slightly alkaline in some layers of some pedons

Ap or A horizon:
Hue—10YR
Value—4 or 5, (6 or 7 dry) and some undisturbed pedons have strata with a color value of 3 (5 dry)
Chroma—1 to 3

Texture—silt loam, and is stratified in many undisturbed pedons

C horizon:
Hue—10YR
Value—4 to 6
Chroma—1 to 3
Texture—dominantly silt loam, and is stratified with thin lenses of other textures in some pedons

2Ab horizon:
Hue—10YR or neutral, and redoximorphic concentrations that have a hue redder than 10YR occur in some pedons
Value—2 to 4
Chroma—0 or 2
Texture—silty clay, clay, or silty clay loam

2Bgb and 2Cg horizons, where present:
Hue—10YR or more yellow hue
Value—3 to 6
Chroma—1 or 2, and redoximorphic features with higher chroma and redder hues
Texture—silty clay, clay, or silty clay loam

3180A—Dupo silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Alluvium
Flooding frequency: Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Dupo and similar soils: 100 percent

Similar soils:
* Soils that contain more clay in the recent alluvium
* Soils that contain carbonates in the recent alluvium
* Soils that have the dark buried soil below a depth of 40 inches

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

8180A—Dupo silt loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Alluvium
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Dupo and similar soils: 100 percent

Similar soils:
* Soils that have a dark buried soil below a depth of 40 inches
* Soils that contain more clay in the recent alluvium
* Soils that contain carbonates in the recent alluvium

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Edwardsville Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Aquic Argiudolls

Typical Pedon for MLRA 115B

Edwardsville silt loam, gently sloping in a cultivated field, at an elevation of about 525 feet above mean sea level; about 1 mile east of Bethalto in Madison County, Illinois; approximately 700 feet north and 1,640 feet east of the southwest corner of sec. 5, T. 5 N., R. 8 W.; USGS Bethalto, IL. topographic quadrangle; lat. 38

degrees 54 minutes 30 seconds N. and long. 90 degrees 00 minutes 54 seconds W.

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; weak fine granular structure; friable; common very fine roots; about 23 percent clay; neutral; abrupt smooth boundary.

A—8 to 15 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate very fine and fine subangular blocky structure parting to moderate fine granular; friable; common very fine roots; about 24 percent clay; neutral; clear smooth boundary.

Bt—15 to 20 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate fine and medium subangular blocky structure; friable; common very fine roots; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; few fine distinct yellowish brown (10YR 5/6) and few medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 30 percent clay; neutral; clear smooth boundary.

Btg1—20 to 27 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium subangular blocky structure; friable; few very fine roots; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) and common fine and medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine and medium rounded black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 32 percent clay; slightly acid; clear smooth boundary.

Btg2—27 to 37 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; few very fine roots; few distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; many fine and medium prominent yellowish brown (10YR 5/6) and common fine and medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; common fine and medium rounded black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 30 percent clay; slightly acid; clear smooth boundary.

Btg3—37 to 49 inches; light brownish gray (2.5Y 6/2) silty clay loam; weak medium prismatic structure parting to weak medium subangular blocky; friable; few very fine roots; few faint dark grayish brown (10YR 4/2) clay films on faces of peds and few distinct very dark grayish brown (10YR 3/2) organo-clay films lining root channels; many fine and medium prominent yellowish brown (10YR 5/6) and common fine prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine and medium rounded black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 28 percent clay; neutral; clear smooth boundary.

BCg—49 to 57 inches; light brownish gray (2.5Y 6/2) silt loam; weak medium prismatic structure; friable; few very fine roots; few distinct very dark grayish brown (10YR 3/2) and dark grayish brown (10YR 4/2) organo-clay films lining root channels; common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; about 25 percent clay; neutral; gradual smooth boundary.

CBg—57 to 80 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; few distinct dark grayish brown (10YR 4/2) organo-clay films lining root channels; few fine prominent yellowish brown (10YR 5/6) masses iron accumulation in the matrix; common medium and coarse irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; about 22 percent clay; neutral.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: 42 to 70 inches

Depth to carbonates: More than 60 inches, where present

Thickness of loess: 80 inches or more

Thickness of the mollic epipedon: 12 to 24 inches, and extends into the upper part of the B horizon in some pedons

Ap or A horizon:
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 or 2
Texture—silt loam, but it is silty clay loam in the lower part of the A horizon in some pedons.

Some pedons have an AB or a BA horizon.

Bt or BC horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—silty clay loam or silt loam

C horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—1 to 4
Texture—silt loam

384A—Edwardsville silt loam, 0 to 2 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Edwardsville and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that contain more clay in the subsoil
* Areas of poorly drained and/or moderately well drained soils
* Soils with a thinner dark surface layer

Dissimilar soils:
* Well drained Wakenda soils on higher summits

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

384B—Edwardsville silt loam, 2 to 5 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Edwardsville and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that contain more clay in the subsoil
* Soils with a thinner dark surface layer
* Areas of moderately well drained soils

Dissimilar soils:
* Areas of well drained Wakenda soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

2384B—Edwardsville-Urban land complex, 1 to 4 percent slopes

Setting

Landform:
* Edwardsville—Till Plain
* Urban land—Till Plain

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Edwardsville and similar soils: 50 percent
Urban land: 40 percent
Dissimilar soils: 10 percent

Similar soils:
* Areas of poorly drained soils
* Soils that do not have a mollic epipedon

Dissimilar soils:
* Areas of well drained Wakenda soils

Urban land:
* Areas covered by buildings, dwellings, roads, streets, parking lots, and lawns and gardens

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Floraville Series

Taxonomic Class: Fine, smectitic, mesic Chromic Vertic Albaqualfs

Typical Pedon for MLRA 114

Floraville silt loam, slightly depressional, on a loess-covered lake terrace tread, in a cultivated field, at an elevation of about 420 feet above mean sea level; about 5 miles southeast of Mascoutah in St. Clair County, Illinois (map sheet Venedy NW, IL.); approximately 2,500 feet west and 2,600 feet north of the southeast corner of sec. 14, T. 1 S., R. 6 W.; USGS Venedy, IL. topographic quadrangle; lat. 38 degrees 26 minutes 40 seconds N. and long. 89 degrees 43 minutes 54 seconds W.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure; friable; many very fine roots throughout; common medium and coarse constricted tubular pores; common fine and medium rounded very dark brown (7.5YR 2.5/2) iron-manganese nodules with sharp boundaries; about 17 percent clay; neutral; abrupt smooth boundary.

Eg—9 to 18 inches; light brownish gray (10YR 6/2) silt loam, light gray (10YR 7/2) dry; moderate medium platy structure parting to weak fine granular; friable; common very fine roots throughout; few fine and medium constricted tubular pores; few distinct light gray (10YR 7/2, dry) clay depletions on faces of peds; common fine and medium rounded very dark brown (7.5YR 2.5/2) iron-manganese nodules with sharp boundaries; about 16 percent clay; slightly acid; abrupt smooth boundary.

Btg1—18 to 23 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate fine subangular blocky structure; firm; common very fine roots throughout; few fine constricted tubular pores; common distinct light gray (10YR 7/2, dry) clay depletions on faces of peds; many faint grayish brown (10YR 5/2) clay films on faces of peds; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded dark reddish brown (5YR 3/4) iron-manganese nodules with clear boundaries; about 33 percent clay; strongly acid; clear smooth boundary.

Btg2—23 to 31 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate fine and medium angular blocky structure; firm; few very fine roots between peds; few fine constricted tubular pores; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium and coarse irregular dark reddish brown (5YR 3/4) iron-manganese nodules with clear boundaries; about 39 percent clay; very strongly acid; gradual smooth boundary.

Btg3—31 to 39 inches; grayish brown (2.5Y 5/2) silty clay loam; weak fine prismatic structure parting to moderate fine and medium angular blocky; firm; few very fine roots between peds; few fine constricted tubular pores; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular dark reddish brown (5YR 3/4) and strong brown (7.5YR 5/6) iron-manganese nodules with clear boundaries; about 38 percent clay; very strongly acid; clear smooth boundary.

Btg4—39 to 44 inches; variegated light brownish gray (2.5Y 6/2) and yellowish brown (10YR 5/6) silty clay loam; weak fine prismatic structure parting to weak medium angular blocky; firm; few very fine roots between peds; few fine constricted tubular pores; few faint dark grayish brown (10YR 4/2) clay films on faces of peds; common fine distinct brown (10YR 5/3) masses of iron accumulation in the matrix; common fine and medium irregular dark reddish brown (5YR 3/3) and strong brown (7.5YR 4/6) iron-manganese nodules with clear boundaries; about 34 percent clay; strongly acid; clear smooth boundary.

2Btg5—44 to 49 inches; olive gray (5Y 5/2) silty clay; weak medium prismatic structure parting to weak medium angular blocky; very firm; few very fine roots between peds; few fine vesicular pores; few faint dark grayish brown (2.5Y 4/2) clay films on faces of peds and few prominent black (N 2.5/0) iron-manganese coatings in channels and pores; common fine distinct light olive brown (2.5Y 5/3) masses of iron accumulation in the matrix; many

fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; about 44 percent clay; moderately acid; clear smooth boundary.

2Btg6—49 to 62 inches; light olive gray (5Y 6/2) silty clay loam; weak medium prismatic structure; firm; few very fine roots between peds; few fine vesicular pores; few faint dark grayish brown (2.5Y 4/2) clay films on faces of peds and few prominent black (N 2.5/0) iron-manganese coatings in channels and pores; common fine distinct light olive brown (2.5Y 5/3) masses of iron accumulation in the matrix; common fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; about 33 percent clay; slightly acid; clear smooth boundary.

2Btg7—62 to 70 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure; firm; few very fine roots between peds; few fine vesicular pores; few distinct dark grayish brown (2.5Y 4/2) clay films on vertical faces of peds and very few prominent black (N 2.5/0) iron-manganese oxide coatings in channels and pores; common fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; about 38 percent clay; slightly acid; abrupt smooth boundary.

3BCg—70 to 78 inches; variegated light brownish gray (10YR 6/2) and yellowish brown (10YR 5/8) silt loam; weak fine prismatic structure; friable; few very fine roots between peds; few distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds and very few prominent very dark grayish brown (10YR 3/2) organo-clay films lining root channels; common medium distinct strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; common fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; about 26 percent clay; neutral; clear smooth boundary.

3CBg—78 to 94 inches; light brownish gray (10YR 6/2) silt loam; massive; friable; few very fine roots throughout; very few prominent very dark grayish brown (10YR 3/2) organo-clay films lining root channels; common fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; about 25 percent clay; neutral.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: 60 to more than 80 inches
Thickness of loess: Typically 36 to about 70 inches
Depth to carbonates: Below 48 inches, where present

Ap horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—1 or 2
Texture—silt loam

Some undisturbed pedons have a thin A horizon with a color value of 3.

Eg horizon:
Hue—10YR or 2.5Y
Value—5 or 6 (6 to 8 dry)
Chroma—1 or 2
Texture—silt loam or silt

Btg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—silty clay loam or silty clay

2Btg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 7
Chroma—0 to 2
Texture—stratified clay, silty clay, silty clay loam, and silt loam

2BCg, 2Cg, 3BCg, 3CBg, or 3Cg horizons, where present:
Hue—7.5YR, 10YR, 2.5Y, 5Y, or neutral
Value—4 to 7
Chroma—0 to 2
Texture—typically silt loam, but is silty clay loam or silty clay in some pedons

433A—Floraville silt loam, 0 to 2 percent slopes

Setting

Landform: Lake Terrace
Position on Landform: Tread

Soil Properties and Qualities

Drainage: Poorly drained
Dominant parent material: Loess overlying lacustrine deposits
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Floraville and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that contain less clay in the subsoil
* Soils that do not have an abrupt textural change
* Areas of somewhat poorly drained soils

Dissimilar soils:
* Moderately well drained Redbud soils on high landform positions

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:
* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

8646A—Fluvaquents, loamy, 0 to 2 percent slopes, occasionally flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Poorly drained
Dominant parent material: Alluvium
Flooding frequency: Occasional

A typical soil series description with range in characteristics is not included in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Fluvaquents, loamy and similar soils: 100 percent

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

3847L—Fluvaquents-Orthents complex, frequently flooded, long duration

Setting

Landform:
* Fluvaquents—Flood Plain
* Orthents—Flood Plain

Soil Properties and Qualities

Drainage:
* Fluvaquents—Poorly drained
* Orthents—Well drained

Dominant parent material:
* Fluvaquents—Alluvium
* Orthents—Alluvium

Flooding frequency:
* Fluvaquents—Frequent
* Orthents—None

A typical soil series description with range in characteristics is not included in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Fluvaquents and similar soils: 50 percent
Orthents and similar soils: 40 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that have more clay or more sand throughout the soil profile
* Soils that are somewhat poorly drained

Dissimilar soils:
* Soils that are very poorly drained or soils that are ponded or flooded for very long durations
* Areas of open channels, ditches or water

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Fosterburg Series

Taxonomic Class: Fine, smectitic, mesic Vertic Argiaquolls

Typical Pedon for MLRA 114

Fosterburg silt loam, from a Virden-Fosterburg silt loams, 0 to 2 percent slopes, map unit - slightly depressional in a cultivated field at an elevation of about 510 feet above mean sea level; about 2.5 miles southeast of Summerville in St. Clair County, Illinois (map sheet Trenton NW, IL.); approximately 125 feet south and 2,500 west of the northeast corner of sec. 36, T. 2 N., R. 6 W.; USGS Trenton, IL. topographic quadrangle; lat. 38 degrees 34 minutes 55 seconds N. and long. 89 degrees 42 minutes 22 seconds W.

Ap—0 to 8 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate fine subangular blocky structure parting to strong fine granular; friable; many very fine roots; few fine rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 25 percent clay; neutral; clear smooth boundary.

A—8 to 13 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; weak fine angular and subangular blocky structure; friable; many very fine roots; few fine rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 26 percent clay; neutral; clear smooth boundary.

BA—13 to 20 inches; very dark gray (10YR 3/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine and medium subangular blocky structure; firm; common very fine roots; many faint black (10YR 2/1) organic coatings on faces of peds; few fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 30 percent clay; neutral; clear smooth boundary.

Btkng1—20 to 29 inches; dark gray (2.5Y 4/1) silty clay loam; moderate fine prismatic structure parting to moderate fine and medium angular blocky; firm; common very fine roots; many distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; few fine prominent yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; common fine irregular white (10YR 8/1 dry) masses of carbonate accumulation and common medium irregular light brownish gray (10YR 6/2) carbonate concretions with clear white (10YR 8/1 dry) boundaries; about 38 percent clay; slightly effervescent; slightly alkaline; gradual smooth boundary.

Btkng2—29 to 41 inches; dark gray (2.5Y 4/1) silty clay loam; moderate fine prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation and few medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; few fine irregular white (10YR 8/1, dry) masses of carbonate accumulation and few medium irregular light brownish gray (10YR 6/2) carbonate concretions with clear white (10YR 8/1, dry) boundaries; about 37 percent clay; slightly effervescent; slightly alkaline; gradual smooth boundary.

Btg1—41 to 50 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation and few medium rounded black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 34 percent clay; neutral; gradual smooth boundary.

Btg2—50 to 62 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure parting to weak coarse subangular blocky; firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; many fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 30 percent clay; neutral; gradual smooth boundary.

BCtg—62 to 71 inches; olive gray (5Y 5/2) silt loam; weak medium prismatic structure; friable; few very fine roots; few distinct dark grayish brown (2.5Y 4/2) clay films on vertical faces of peds; many medium prominent strong brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular black (N 2.5/0) iron-manganese nodules with diffuse strong brown (7.5YR 5/6) boundaries; about 26 percent clay; neutral; gradual smooth boundary.

Cg—71 to 86 inches; light olive gray (5Y 6/2) silt loam; massive; friable; few distinct very dark gray (2.5Y 3/1) organo-clay coatings lining root channels; common fine and medium prominent reddish yellow (7.5YR 6/8) masses of iron accumulation in the matrix; few medium irregular black (N 2.5/0) iron-manganese nodules with diffuse strong brown (7.5YR 5/6) boundaries; about 22 percent clay; neutral.

MLRA Series Range in Characteristics

Depth to the base of soil development: 40 to 72 inches
Depth to carbonates: Carbonates, where present, typically occur in the B horizon, but they occur in the BCg and Cg horizons in some pedons.
Thickness of loess: About 80 inches or more
Thickness of the mollic epipedon: 10 to 24 inches, and extends into the B horizon in some pedons

Ap and A horizons:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—2 or 3 (3 or 4 dry)
Chroma—0 or 1
Texture—silt loam or silty clay loam

Some pedons contain an AB horizon.

B horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—3 to 5 in the upper part and 4 to 6 in the lower part
Chroma—0 to 2
Texture—silty clay loam or silty clay in the upper part and silty clay loam or silt loam in the lower part

Some pedons have a BCg horizon.

Cg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—5 or 6
Chroma—0 to 2
Texture—silt loam

Fults Series

Taxonomic Class: Fine, smectitic, mesic Vertic Endoaquolls

Typical Pedon for MLRA 115B

Fults silty clay, with a slope of 1 percent on a slightly undulating flood plain, in a cultivated field at an elevation of about 385 feet above mean sea level; about 2.5 miles northwest of Chalfin Bridge in Monroe County, Illinois; approximately 390 feet south and 120 feet west of the northeast corner of sec. 4, T. 4 S., R. 11 W.; USGS Selma IL.-MO. topographic quadrangle; lat. 38 degrees 13 minutes 23 seconds N. and long. 90 degrees 18 minutes 47 seconds W.

Ap—0 to 7 inches; very dark gray (10YR 3/1) silty clay, dark gray (10YR 4/1) dry; moderate fine granular structure; very firm; common fine roots; neutral; 57 percent clay and 1 percent sand; abrupt smooth boundary.

A—7 to 12 inches; very dark gray (10YR 3/1) silty clay, dark gray (10YR 4/1) dry; moderate medium angular blocky structure; very firm; few fine roots; 58 percent clay and 1 percent sand; neutral; clear smooth boundary.

Btg1—12 to 18 inches; dark gray (10YR 4/1) clay; moderate medium prismatic structure parting to moderate medium angular blocky; very firm; few fine roots; many distinct very dark gray (5Y 3/1) organo-clay films on faces of peds; few fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; 61 percent clay and 1 percent sand; neutral; clear smooth boundary.

Btg2—18 to 26 inches; dark gray (5Y 4/1) clay; moderate medium prismatic structure parting to moderate medium angular blocky; very firm; few fine roots; many distinct very dark gray (5Y 3/1) organo-clay films on faces of peds; few fine prominent brown (7.5YR 4/4) masses of iron accumulation in the matrix; 59 percent clay and 3 percent sand; neutral; clear smooth boundary.

Btg3—26 to 32 inches; dark gray (5Y 4/1) clay; moderate medium prismatic structure parting to moderate medium angular blocky; firm; few fine roots; common distinct very dark gray (5Y 3/1) organo-clay films on faces of peds; common fine prominent brown (7.5YR 4/4) masses of iron accumulation in the matrix; 53 percent clay and 13 percent sand; neutral; clear smooth boundary.

2Btg4—32 to 38 inches; dark gray (5Y 4/1) clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; few fine roots; many faint very dark gray (5Y 3/1) organo-clay films on faces of peds; common medium prominent yellowish red (5YR 5/8) masses of iron accumulation in the matrix; 35 percent clay and 34 percent sand; neutral; clear smooth boundary.

2Btg5—38 to 42 inches; dark gray (5Y 4/1) sandy clay loam; weak medium prismatic structure parting to weak medium subangular blocky; very friable; few fine roots; few faint very dark gray (5Y 3/1) organo-clay films on faces of peds; common fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; 23 percent clay and 52 percent sand; neutral; clear smooth boundary.

2Cg—42 to 60 inches; dark gray (5Y 4/1) stratified fine sandy loam; massive; very friable; many medium prominent brown (7.5YR 4/4) masses of iron accumulation in the matrix; 14 percent clay and 76 percent sand; neutral.

MLRA Series Range in Characteristics

Depth to the base of soil development: 32 to 64 inches
Thickness of the mollic epipedon: 10 to 24 inches and extends into the B horizon in many pedons

Depth to the loamy 2B horizon: Typically 24 to 36 inches, but ranges to 40 inches

Depth to carbonates: These soils typically do not have carbonates within the particle-size control section, but some pedons contain carbonates in the loamy or sandy alluvium.

Ap and A horizons:
Hue—10YR or 2.5Y
Value—2 or 3 (3 to 5 dry)
Chroma—1 or 2
Texture—silty clay loam or silty clay, and the range includes clay in some pedons

B horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—3 to 6
Chroma—0 to 2
Texture—silty clay or clay, but some subhorizons are silty clay loam or clay loam with more than 35 percent clay

2B horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silt loam, loam, silty clay loam, clay loam, sandy clay loam, sandy loam, fine sandy loam, or very fine sandy loam, and typically is stratified

2C horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 3
Texture—stratified with individual strata ranging from silty clay loam to very fine sand

8591A—Fults silty clay, 0 to 2 percent slopes, occasionally flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Poorly drained
Dominant parent material: Alluvium
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Fults and similar soils: 100 percent

Similar soils:
* Soils that contain less sand in the lower part
* Soils that contain less clay throughout
* Soils that contain carbonates in the loamy alluvium

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Geff Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Aquic Hapludalfs

Typical Pedon for MLRA 114

Geff silt loam, nearly level in a cultivated field, at an elevation of about 405 feet above mean sea level; about 3 miles southeast of Damiansville in Clinton County, Illinois; approximately 2,200 feet south and 1,500 feet east of the northwest corner of sec. 32, T. 1 N., R. 4 W.; USGS Okawville, IL. topographic quadrangle; lat. 38 degrees 29 minutes 20 seconds N. and long. 89 degrees 33 minutes 57 seconds W.

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) silt loam, light brownish gray (10YR 6/2) dry; moderate very fine granular structure; friable; few very fine roots; few very fine continuous tubular pores; few fine and medium irregular black (N 2.5/0) iron-manganese nodules with sharp boundaries; neutral; abrupt smooth boundary.

E—5 to 12 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 8/2) dry; moderate thick platy and moderate medium subangular blocky structure; friable; few very fine roots; common very fine and fine continuous tubular pores; common medium faint light brownish gray (10YR 6/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (N 2.5/0) and brown

(7.5YR 4/4) iron-manganese nodules with sharp boundaries; neutral; clear smooth boundary.

Bt1—12 to 20 inches; dark yellowish brown (10YR 4/4) silt loam; moderate medium subangular blocky structure; friable; few very fine roots; few very fine constricted tubular pores; few faint light gray (10YR 7/2, dry) clay depletions and common faint dark grayish brown (10YR 4/2) clay films on faces of peds; common fine distinct grayish brown (10YR 5/2) iron depletions; common fine and medium irregular very dark brown (7.5YR 2.5/2) and strong brown (7.5YR 4/6) iron-manganese nodules with clear boundaries; moderately acid; clear smooth boundary.

Bt2—20 to 26 inches; dark yellowish brown (10YR 4/4) silty clay loam; strong fine subangular blocky structure; firm; few very fine roots; few very fine constricted tubular pores; few faint light gray (10YR 7/2, dry) clay depletions and many distinct dark grayish brown (10YR 4/2) and brown (10YR 4/3) clay films on faces of peds; common fine distinct grayish brown (10YR 5/2) iron depletions and few fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; common fine and medium irregular very dark brown (7.5YR 2.5/2) and strong brown (7.5YR 4/6) masses of iron-manganese accumulation with clear boundaries; strongly acid; clear smooth boundary.

Bt3—26 to 33 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine prismatic structure parting to moderate fine subangular blocky; firm; few very fine roots; few very fine constricted tubular pores; few faint light gray (10YR 7/2, dry) clay depletions and many distinct dark grayish brown (10YR 4/2) and brown (10YR 4/3) clay films on faces of peds; common fine distinct grayish brown (10YR 5/2) iron depletions and common fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; common medium and coarse irregular very dark brown (7.5YR 2.5/2) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation with clear boundaries; strongly acid; clear smooth boundary.

2Bt4—33 to 37 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine prismatic structure parting to moderate fine subangular blocky; friable; few very fine roots; few very fine constricted tubular pores; few faint light gray (10YR 7/2, dry) clay depletions and common distinct brown (10YR 4/3) clay films on faces of peds; few fine distinct grayish brown (10YR 5/2) iron depletions and common fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; few fine and medium irregular very dark brown (7.5YR 2.5/2) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation with clear boundaries; about 8 percent sand; strongly acid; clear smooth boundary.

2Bt5—37 to 50 inches; dark yellowish brown (10YR 4/4) silt loam; moderate medium prismatic structure; friable; few very fine roots; few very fine vesicular pores; few faint light gray (10YR 7/2, dry) clay depletions and few distinct brown (10YR 4/3) clay films on faces of peds; few prominent black (10YR 2/1) iron-manganese coatings on vertical ped faces and lining root channels; few medium distinct grayish brown (10YR 5/2) iron depletions; many fine distinct dark yellowish brown (10YR 4/6) and few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium and coarse irregular very dark brown (7.5YR 2.5/2) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation with diffuse boundaries; about 15 percent sand; strongly acid; gradual smooth boundary.

2BCt—50 to 62 inches; dark yellowish brown (10YR 4/4) loam; weak medium prismatic structure; friable; few very fine roots; few very fine and fine vesicular pores; few faint light gray (10YR 7/2, dry) clay depletions and few distinct brown (10YR 4/3) clay films on faces of peds; few prominent black (10YR 2/1) iron-manganese coatings on vertical ped faces and lining root channels; few fine distinct grayish brown (10YR 5/2) iron depletions and many fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; common medium and coarse irregular very dark brown (7.5YR 2.5/2) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation with diffuse boundaries; moderately acid; gradual smooth boundary.

2C1—62 to 72 inches; yellowish brown (10YR 5/4) loam; massive; very friable; few very fine roots; few very fine and fine vesicular pores; very few prominent black (10YR 2/1) iron-manganese coatings lining root channels and pores; common medium distinct light brownish gray (10YR 6/2) iron depletions and few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; few medium and coarse irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation with diffuse boundaries; slightly acid; clear smooth boundary.

2C2—72 to 78 inches; yellowish brown (10YR 5/4) stratified loam and fine sandy loam; massive; very friable; few very fine vesicular pores; very few prominent black (10YR 2/1) iron-manganese coatings lining root channels and pores; few fine distinct light brownish gray (10YR 6/2) iron depletions and common fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in

the matrix; few fine and medium irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation with diffuse boundaries; neutral; abrupt smooth boundary.

3E&Bt—78 to 94 inches; light yellowish brown (10YR 6/4) fine sand (E); single grain; loose; yellowish brown (10YR 5/6) loamy fine sand lamella (Bt); massive; very friable; few distinct dark yellowish brown (10YR 4/4) clay films as bridges between sand grains; slightly acid.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon including lamella: More than 40 inches
Thickness of loess or other silty material: 24 to 40 inches
Content of rock fragments: Less than 10 percent by volume in the 2Bt and 2E&Bt horizons

Ap or A horizon:
Hue—10YR
Value—4 or 5, (6 or 7 dry) and some pedons have an A horizon less than 7 inches in thickness that has color value of 2 or 3 (4 or 5 dry)
Chroma—1 to 3
Texture—silt loam

E and/or BE horizon:
Hue—10YR
Value—5 or 6
Chroma—2 or 3
Texture—silt loam or silty clay loam

Bt horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture—silty clay loam

2Bt and/or 2BC horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—averages 18 to 30 percent clay and 15 to 70 percent sand, and individual subhorizons range from 10 to 35 percent clay and 15 to 70 percent sand

3E&Bt horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—The E part averages 1 to 10 percent clay and 70 to 98 percent sand. The Bt part averages 3 to 15 percent clay and 65 to 95 percent sand.

Some pedons have a 2C horizon within a depth of 80 inches.

8432A—Geff silt loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Alluvium
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Geff and similar soils: 100 percent

Similar soils:
* Soils that contain more sand in the upper part
* Soils that have a darker surface horizon
* Areas that are more sloping

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Gorham Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Fluvaquentic Endoaquolls

Typical Pedon for MLRA 115B

Gorham silty clay loam, on a nearly level flood plain, in a cultivated field, at an elevation of about 360 feet above mean sea level; about 1 mile northwest of Gorham in Jackson County, Illinois; approximately 1,400 feet east and 1,800 feet north of the southwest corner of sec. 24, T. 9 S., R. 4 W.; USGS Altenburg, MO.-IL. topographic quadrangle; lat. 37 degrees 43

minutes 37 seconds N. and long. 89 degrees 30 minutes 12 seconds W.

Ap—0 to 7 inches; very dark gray (10YR 3/1) silty clay loam, grayish brown (10YR 5/2) dry; moderate fine and medium angular blocky structure parting to weak fine granular; firm; common very fine roots; neutral; abrupt smooth boundary.

A—7 to 14 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine and medium angular blocky structure; very firm; common very fine roots; common faint black (10YR 2/1) organic coatings on faces of peds; few fine irregular brown (7.5YR 4/4) masses of iron-manganese accumulation with sharp boundaries; neutral; clear smooth boundary.

Btg1—14 to 26 inches; dark gray (10YR 4/1) silty clay loam; weak medium prismatic structure parting to moderate fine and medium angular blocky; very firm; common very fine roots; common faint very dark gray (10YR 3/1) organo-clay films on faces of peds; common fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; common fine irregular brown (7.5YR 4/4) masses of iron-manganese accumulation with clear boundaries; neutral; gradual smooth boundary.

Btg2—26 to 36 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; very firm; few very fine roots; many distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; many fine prominent dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; common fine irregular brown (7.5YR 4/4) masses of iron-manganese accumulation with clear boundaries; about 12 percent sand; slightly acid; clear smooth boundary.

2Bt1—36 to 47 inches; olive brown (2.5Y 4/3) clay loam; moderate medium prismatic structure parting to moderate fine and medium angular blocky; firm; few very fine roots; few very fine continuous tubular pores; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds and few prominent very dark gray (10YR 3/1) organo-clay films on vertical faces of peds and lining root channels; many medium faint grayish brown (2.5Y 5/2) iron depletions; neutral; clear smooth boundary.

2Bt2—47 to 54 inches; olive brown (2.5Y 4/3) loam; weak medium angular blocky structure; friable; few very fine roots; few very fine continuous tubular pores; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds and lining root channels; common fine faint dark grayish brown (2.5YR 4/2) iron depletions and few medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.

2BC—54 to 62 inches; brown (10YR 4/3) fine sandy loam; weak medium and coarse angular blocky structure; very friable; few very fine roots; common very fine and fine continuous tubular pores; few distinct very dark grayish brown (10YR 3/2) organo-clay films on vertical faces of peds and lining root channels and pores; common medium distinct dark grayish brown (2.5Y 4/2) iron depletions; few shiny mica flecks; slightly acid; clear smooth boundary.

2C1—62 to 78 inches; brown (10YR 4/3) stratified fine sandy loam and loamy fine sand; massive; very friable; few very fine and fine continuous tubular pores; common fine distinct grayish brown (2.5Y 5/2) iron depletions; few shiny mica flecks; slightly acid; abrupt smooth boundary.

2C2—78 to 90 inches; yellowish brown (10YR 5/4) fine sand; single grain; loose; neutral.

MLRA Series Range in Characteristics

Depth to the base of soil development: 36 to 72 inches
Thickness of the mollic epipedon: 10 to 24 inches, and extends into the upper part of the B horizon in some pedons
Depth to carbonates: More than 40 inches, where present

Ap and A horizons:
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 or 2
Texture—silty clay loam, and less commonly silt loam or silty clay

Btg or Bg horizons that formed in silty alluvium:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—3 to 5
Chroma—0 to 2
Texture—silty clay loam or silty clay - Clay content averages 27 to 35 percent but individual subhorizons range to 42 percent clay. Sand content is less than 15 percent.

2Bt, 2Btg, or 2BC horizons that formed in loamy or sandy alluvium:
Hue—7.5YR, 10YR, 2.5Y, or 5Y
Value—3 to 5
Chroma—1 to 4
Texture—sandy clay loam, clay loam, loam, sandy loam, and fine sandy loam or loamy sand and the fine and very fine analogs of loamy sand - It is stratified in color or texture or both. Clay content averages 18 to 27 percent and sand content averages 35 to 70 percent. Individual horizons or strata range from 8 to 32 percent clay and range from 30 to 85 percent sand.

2C or 2Cg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—2 to 6
Texture—sand, fine sand, loamy sand, or loamy fine sand, and less commonly sandy loam, or the fine and very fine analogs of sandy loam - Thin strata of other textures are in some pedons. Clay content averages 5 to 15 percent and sand content ranges from 60 to 95 percent.

8162A—Gorham silty clay loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Poorly drained
Dominant parent material: Alluvium
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Gorham and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that contain more clay in the surface horizon
* Soils that contain carbonates in the loamy alluvium
Dissimilar soils:
* Well drained Landes soils on natural levees

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Grantfork Series

Taxonomic Class: Fine-loamy, mixed, superactive, mesic Aeric Epiaqualfs

Typical Pedon for MLRA 114

Grantfork silty clay loam, on a severely eroded back slope, with a slope of 9 percent in a field of clover, at an elevation of about 590 feet above mean sea level; about one mile northeast of New Douglas in Madison County, Illinois; approximately 732 feet east and 560 feet north of the southwest corner of sec. 3, T. 6 N., R. 5 W.; USGS New Douglas, IL. topographic quadrangle; lat. 38 degrees 59 minutes 42 seconds N. and long. 89 degrees 39 minutes 17 seconds W.

Ap—0 to 5 inches; dark yellowish brown (10YR 4/4) silty clay loam, light yellowish brown (10YR 6/4) dry; weak fine and medium subangular blocky structure; firm; common very fine and few fine roots; few very fine and fine tubular pores; few fine rounded dark reddish brown (5YR 3/4) masses of iron-manganese accumulation; 11 percent sand; few pebbles; neutral; abrupt smooth boundary.

Bt—5 to 12 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium angular blocky structure in 2-inch plowsole and weak medium subangular blocky below; firm; few very fine roots; many faint brown (10YR 4/3) clay films on faces of peds in the upper part and many distinct grayish brown (10YR 4/2) clay films on faces of peds in the lower part; common fine distinct grayish brown (10YR 5/2) iron depletions and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; 17 percent sand; few pebbles; neutral; clear smooth boundary.

Btg—12 to 23 inches; grayish brown (10YR 5/2) silt loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; 3 percent exchangeable sodium; 24 percent sand; few pebbles; slightly alkaline; abrupt smooth boundary.

Btng1—23 to 29 inches; light brownish gray (2.5Y 6/2) loam; weak medium and coarse prismatic structure parting to weak medium angular blocky; firm; few very fine roots; many distinct grayish brown (10YR 5/2) clay films on faces of peds; common fine prominent dark yellowish brown (10YR 4/4) and common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; 6 percent exchangeable sodium; 24 percent sand; few pebbles; moderately alkaline; clear smooth boundary.

Btng2—29 to 37 inches; grayish brown (10YR 5/2) clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine distinct dark yellowish brown (10YR 4/4) and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; 8 percent exchangeable sodium; 25 percent sand; few pebbles; moderately alkaline; clear smooth boundary.

2Btng3—37 to 49 inches; light brownish gray (10YR 6/2) clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; many distinct grayish brown (10YR 5/2) clay films on faces of peds and brown (10YR 4/3) clay films lining pores; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) iron-manganese nodules with sharp boundaries; 10 percent exchangeable sodium; 35 percent sand; common pebbles; moderately alkaline; clear smooth boundary.

2Btng4—49 to 57 inches; light brownish gray (10YR 6/2) loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; many distinct dark grayish brown (10YR 4/2) and dark yellowish brown (10YR 4/4) clay films on faces of peds; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) iron-manganese nodules with sharp boundaries; 11 percent exchangeable sodium; 33 percent sand; common pebbles; strongly alkaline; clear smooth boundary.

2BCtng—57 to 67 inches; light brownish gray (10YR 6/2) clay loam; weak coarse prismatic structure; friable; common faint grayish brown (10YR 5/2) clay films on vertical faces of peds; few prominent very dark gray (10YR 3/1) organo-clay films lining pores; many medium distinct yellowish brown (10YR 5/6) and prominent yellowish red (5YR 5/8) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; 11 percent exchangeable sodium; 41 percent sand; common pebbles; moderately alkaline; clear smooth boundary.

3Btgb—67 to 80 inches; gray (2.5Y 5/1) clay; weak medium prismatic structure parting to moderate medium angular blocky; very firm; many faint gray (2.5Y 5/1) pressure faces on faces of peds; few prominent very dark gray (10YR 3/1) organo-clay films lining pores; many coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix in the upper part; common pebbles and few cobbles; slightly alkaline.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: More than 45 inches

Depth to till: Typically 30 to 40 inches, but is as deep as 45 inches in some pedons and is at the surface in others

Ap or A horizon:
Hue—10YR
Value—3 or 4 (5 or 6 dry)
Chroma—2 to 4
Texture—silty clay loam, clay loam, silt loam, or loam

E, EB, or BE horizons, where present:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—silty clay loam, clay loam, silt loam, or loam

Bt and 2Bt horizons:
Hue—10YR or 2.5Y, and less commonly 7.5YR
Value—4 to 6, but ranging to 7 in the lower part in some pedons
Chroma—2 to 4 in the upper part and 1 to 4 in the lower part
Texture—silty clay loam, clay loam, silt loam, or loam

BCg or 2BCg horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—1 or 2
Texture—silty clay loam, clay loam, silt loam, or loam

Cg or 2Cg horizon, where present:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—1 or 2
Texture—typically clay loam, but the range includes loam or silt loam

Some pedons have a C horizon that is underlain by buried horizons of older soils, and other pedons do not have a C horizon where the modern soil is welded to a strongly developed paleosol.

Haynie Series

Taxonomic Class: Coarse-silty, mixed, superactive, calcareous, mesic Mollic Udifluvents

Typical Pedon for MLRA 115B

Haynie silt loam, in a cultivated field, at an elevation of about 375 feet above mean sea level, about 0.75 mile southwest of Kaskaskia in Randolph County, Illinois; Illinois State Plane Coordinates 453,665 feet north and 571,165 feet east (Illinois West Zone), T. 7 S., R. 8 W.; USGS Kaskaskia, MO.-IL. topographic quadrangle; lat. 37 degrees 54 minutes 43 seconds N. and long. 89 degrees 55 minutes 44 seconds W.

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; slightly alkaline; abrupt smooth boundary.

C1—8 to 18 inches; brown (10YR 4/3) very fine sandy loam; massive; very friable; slightly effervescent; slightly alkaline; clear smooth boundary.

C2—18 to 42 inches; grayish brown (10YR 5/2) very fine sandy loam; massive; very friable; strongly effervescent; slightly alkaline; clear smooth boundary.

C3—42 to 53 inches; dark grayish brown (10YR 4/2) and grayish brown (10YR 5/2) very fine sandy loam; massive; very friable; common fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; few lenses of silty clay loam; strongly effervescent; slightly alkaline; abrupt smooth boundary.

C4—53 to 60 inches; dark grayish brown (10YR 4/2) silt loam; massive; friable; common fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; strongly effervescent; slightly alkaline.

MLRA Series Range in Characteristics

Thickness of the solum: Less than 10 inches
Particle-size control section: Averages less than 18 percent clay and less than 15 percent sand or coarser sand, but the content of clay combined with the content of silt is more than 35 percent and the total sand content is typically more than 15 percent.
Depth to carbonates: Depth to carbonates ranges from 0 to 10 inches, and the soil contains carbonates throughout the series control section.

Ap or A horizon:
Hue—10YR or 2.5Y
Value—3 (5 dry)
Chroma—2
Texture—silt loam, very fine sandy loam, or silty clay loam

C horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—dominantly 2, but ranges to 4
Texture—typically silt loam or very fine sandy loam, but some pedons contain strata of loam and fine sandy loam, and in the lower part, loamy very fine sand and loamy fine sand

3394A—Haynie silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Alluvium
Flooding frequency: Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Haynie and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that contain more clay throughout
* Soils that contain more sand throughout
Dissimilar soils:
* Small areas of poorly drained soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

3394B—Haynie silt loam, 2 to 5 percent slopes, frequently flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Alluvium
Flooding frequency: Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Haynie and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that contain more clay throughout
* Soils that contain more sand throughout
Dissimilar soils:
* Small areas of poorly drained soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

8394A—Haynie silt loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Alluvium
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Haynie and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that contain more clay in the surface horizon
Dissimilar soils:
* Areas of poorly drained soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Herrick Series

Taxonomic Class: Fine, smectitic, mesic Aquertic Argiudolls

Typical Pedon for MLRA 114

Herrick silt loam, nearly level in a cultivated field, at an elevation of about 520 feet above mean sea level; about 2 miles east of Summerfield in St. Clair County, Illinois (map sheet Trenton NW, IL.); approximately 850 feet west and 520 feet north of the southeast corner of sec. 24, T. 2 N., R. 6 W.; USGS Trenton, IL. topographic quadrangle; lat. 38 degrees 35 minutes 53 seconds N. and long. 89 degrees 42 minutes 33 seconds W.

Ap—0 to 8 inches; very dark brown (10YR 2/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; many very fine roots; about 25 percent clay; slightly acid; abrupt smooth boundary.

A—8 to 13 inches; very dark brown (10YR 2/2) silt loam, grayish brown (10YR 5/2) dry; strong medium granular structure; friable; many very fine roots; few fine rounded strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 26 percent clay; slightly acid; clear smooth boundary.

BE—13 to 18 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; weak medium platy structure parting to moderate very fine subangular blocky; friable; common very fine roots; few faint light brownish gray (10YR 6/2, dry) clay depletions on faces of peds and many distinct very dark brown (10YR 2/2) organic coatings on faces of peds; common fine distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 32 percent clay; slightly acid; clear smooth boundary.

Bt1—18 to 28 inches; brown (10YR 4/3) silty clay loam; weak fine prismatic structure parting to moderate fine and medium subangular blocky; firm; common very fine roots; many distinct very dark grayish brown (10YR 3/2) clay films on faces of peds; few fine distinct grayish brown (10YR 5/2) iron depletions and few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) masses of iron-manganese accumulation; about 37 percent clay; moderately acid; gradual smooth boundary.

Bt2—28 to 39 inches; brown (10YR 4/3) silty clay loam; moderate fine prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots; many distinct very dark grayish brown (10YR 3/2) and dark grayish brown (10YR 4/2) clay films on faces of peds; common fine distinct grayish brown (10YR 5/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation; about 36 percent clay; moderately acid; gradual smooth boundary.

Bt3—39 to 53 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many fine and medium distinct grayish brown (10YR 5/2) iron depletions and common fine and medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation; about 33 percent clay; slightly acid; gradual smooth boundary.

BCt—53 to 60 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium prismatic structure parting to weak coarse angular blocky; friable; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; many medium distinct grayish brown (10YR 5/2) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 29 percent clay; neutral; gradual smooth boundary.

C—60 to 86 inches; dark yellowish brown (10YR 4/4) silt loam; massive; friable; few very fine roots; few distinct dark grayish brown (10YR 4/2) clay films lining vertical channels; common medium distinct light brownish gray (10YR 6/2) iron depletions and many fine and medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; about 25 percent clay; neutral.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: 40 to 65 inches
Thickness of the mollic epipedon: 10 to 21 inches and includes the E horizon in some pedons
Thickness of loess: 50 to about 80 inches

Ap horizon and A horizon, where present:
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 or 2
Texture—silt loam

E or BE horizon:
Hue—10YR
Value—3 or 4
Chroma—1 or 2, and some pedons have redoximorphic concentrations with chroma of 3 to 6 and faint redoximorphic concentrations with chroma of 2
Texture—silt loam

Some pedons have an incipient E horizon and other pedons have an EB horizon.

Bt or Btg horizon:
Hue—10YR or 2.5Y, and some pedons have 5Y in the lower part
Value—4 to 6
Chroma—2 to 6
Texture—silty clay loam or silty clay in the upper part, and silty clay loam or silt loam in the lower part

Some pedons have a BC or BCg horizon.

C or 2C horizon:
Hue—7.5YR, 10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—2 to 6
Texture—typically silt loam, but in some pedons it is loam or clay loam below a depth of 50 inches

46A—Herrick silt loam, 0 to 2 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Herrick and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that are poorly drained
* Soils that are moderately well drained
* Soils with less clay in the subsoil
* Soils with a thinner dark surface layer

Dissimilar soils:
* Piasa soils that have a natric horizon

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

894A—Herrick-Biddle-Piasa silt loams, 0 to 2 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage:
* Herrick—Somewhat poorly drained
* Biddle—Somewhat poorly drained
* Piasa—Poorly drained

Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Herrick and similar soils: 40 percent
Biddle and similar soils: 30 percent
Piasa and similar soils: 20 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that have a thinner dark surface horizon
* Areas of poorly drained soils

Dissimilar soils:
* Small areas of depressional soils that remain wet for periods that extend into the growing season

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Hickory Series

Taxonomic Class: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon for MLRA 114

Hickory silt loam, on a north-facing, wooded, convex slope, with a 30 percent slope, at an elevation of about 590 feet above mean sea level; about 8 miles north and 0.5 mile west of Greenville in Bond County, Illinois; approximately 792 feet west and 38 feet north of the southeast corner of sec. 28, T. 7 N., R. 3 W.; USGS Coffeen, IL. topographic quadrangle; lat. 39 degrees 00 minutes 48 seconds N. and long. 89 degrees 25 minutes 11 seconds W.

A—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; many very fine and few fine and medium roots; few fine and medium continuous tubular pores; about 20 percent sand; very strongly acid; clear smooth boundary.

E—4 to 12 inches; light yellowish brown (10YR 6/4) silt loam, very pale brown (10YR 7/4) dry; weak very thick platy structure parting to weak fine granular; friable; few very fine to medium roots; few fine and medium continuous tubular pores; pockets of dark grayish brown (10YR 4/2) surface soil filling large root channels; about 20 percent sand; about 1 percent pebbles; strongly acid; clear smooth boundary.

Bt1—12 to 17 inches; yellowish brown (10YR 5/6) clay loam; moderate fine subangular blocky structure; firm; common very fine and few fine and medium roots; common distinct brown (10YR 4/3) clay films on faces of peds; about 1 percent pebbles; very strongly acid; clear smooth boundary.

Bt2—17 to 26 inches; dark yellowish brown (10YR 4/6) clay loam; moderate medium subangular blocky structure; firm; few very fine and medium roots; common distinct brown (10YR 5/3) clay films on faces of peds; about 2 percent fine and medium pebbles; very strongly acid; gradual smooth boundary.

Bt3—26 to 35 inches; yellowish brown (10YR 5/4) clay loam; moderate medium and coarse angular blocky structure; firm; few very fine and medium roots; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds and few prominent brown (7.5YR 4/4) clay films coating medium pebbles; many medium and coarse distinct brownish yellow (10YR 6/8) and prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 3 percent fine and medium pebbles; very strongly acid; gradual smooth boundary.

Bt4—35 to 46 inches; yellowish brown (10YR 5/4) clay loam; weak medium and coarse prismatic structure parting to weak coarse angular blocky; firm; few very fine and medium roots; common distinct dark yellowish brown (10YR 4/4) clay films on vertical faces of peds and few prominent brown (7.5YR 4/4) clay films coating medium and coarse pebbles; many coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 4 percent fine to coarse pebbles; strongly acid; diffuse smooth boundary.

BCt—46 to 58 inches; light yellowish brown (10YR 6/4) loam; weak medium and coarse subangular blocky structure; friable; few very fine and fine roots; few distinct dark yellowish brown (10YR 4/4) clay films on vertical faces of peds and few prominent brown (7.5YR 4/4) clay films coating medium pebbles; common medium distinct dark yellowish brown (10YR 4/6) and few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 5 percent fine and medium pebbles; strongly acid; gradual smooth boundary.

CB—58 to 65 inches; yellowish brown (10YR 5/6) loam; massive; friable; few very fine and fine roots; few distinct brown (10YR 4/3) clay films lining root channels and coating medium pebbles; few fine distinct brown (10YR 5/3) iron depletions in the matrix; about 5 percent fine and medium pebbles; moderately acid; clear smooth boundary.

C—65 to 80 inches; variegated yellowish brown (10YR 5/4), strong brown (7.5YR 5/6), and light gray (2.5Y 7/1) loam; massive; friable; few very fine roots; about 3 percent fine and medium pebbles; slightly acid.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: More than 40 inches
Thickness of loess: 0 to 20 inches
Depth to carbonates: More than 40 inches, where present
Particle-size control section: Averages 27 to 35 percent clay, 15 to 45 percent fine sand and coarser, and less than 20 percent gravel

A horizon, where present:
Hue—10YR
Value—2 to 4 (4 to 6 dry)
Chroma—2 or 3
Texture—silt loam or loam

Ap horizon, where present:
Hue—7.5YR or 10YR
Value—3 to 5 (5 to 7 dry)
Chroma—2 to 4
Texture—silt loam or loam, and silty clay loam or clay loam in some eroded pedons

E horizon:
Hue—10YR
Value—4 to 6 (5 to 7 dry)
Chroma—2 to 4
Texture—silt loam or loam

Some pedons have a BE horizon

Bt and/or 2Bt horizons:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—commonly clay loam, but in some pedons the first subhorizon is silty clay loam, and in other pedons the lower horizons are loam or gravelly clay loam

Some pedons have a BC horizon

CB and C horizon:
Hue—7.5YR, 10YR or 2.5Y
Value—5 to 7
Chroma—1 to 8
Texture—loam, clay loam, or sandy loam; and gravel content averages about 5 percent and ranges from 2 to 20 percent

8F2—Hickory silt loam, 18 to 35 percent slopes, eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Till
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Hickory and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Areas that are more or less eroded
* Soils that contain more clay in the subsoil
* Soils that contain redox iron depletions in the subsoil

Dissimilar soils:
* Somewhat poorly drained Atlas soils
* Areas of stony soils and bedrock outcrops
* Areas where gullies have formed

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Homen Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

Typical Pedon for MLRA 114

Homen silt loam, gently sloping in a cultivated field, at an elevation of about 560 feet above mean sea level; about 4 miles south of Coulterville in Randolph County, Illinois; approximately 714 feet south and 45 feet east of the center of sec. 1, T. 5 S., R. 5 W.; USGS Percy, IL. topographic quadrangle; lat. 38 degrees 7 minutes 23 seconds N. and long. 89 degrees 36 minutes 5 seconds W.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; many very fine and fine roots; few fine constricted tubular pores; few fine rounded black (N 2.5/0) iron-manganese concretions; about 23 percent clay; slightly acid; abrupt smooth boundary.

E—9 to 15 inches; yellowish brown (10YR 5/4) silt loam, light yellowish brown (10YR 6/4) dry; weak medium platy structure parting to moderate medium granular; friable; common very fine and fine roots; few fine continuous tubular pores; few fine rounded black (N 2.5/0) iron-manganese concretions; about 25 percent clay; very strongly acid; clear smooth boundary.

Bt—15 to 22 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; common very fine and fine roots; common fine and medium constricted tubular pores; common prominent very pale brown (10YR 7/3, dry) clay depletions on faces of peds; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; few fine and medium rounded black (N 2.5/0) iron-manganese concretions; about 29 percent clay; very strongly acid; abrupt smooth boundary.

Bt/E—22 to 28 inches; yellowish brown (10YR 5/6) silty clay loam (Bt part); moderate fine and medium subangular blocky structure; firm; common fine roots along vertical ped faces; many distinct yellowish brown (10YR 5/4) clay films on faces of peds; few fine and medium rounded black (N 2.5/0) iron-manganese concretions; many prominent very pale brown (10YR 7/3, dry) clay depletions on faces of peds and filling vertical interstices between peds (E part); very strongly acid; abrupt smooth boundary.

B't1—28 to 37 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots throughout; common prominent very pale brown (10YR 7/3, dry) clay depletions on faces of peds and many prominent dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium irregular dark brown (7.5YR 3/4) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 32 percent clay; very strongly acid; clear smooth boundary.

B't2—37 to 48 inches; yellowish brown (10YR 5/4) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky;

firm; common very fine roots throughout; few prominent very pale brown (10YR 7/3, dry) clay depletions on faces of peds and common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium irregular dark brown (7.5YR 3/4) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 30 percent clay; strongly acid; gradual smooth boundary.

B't3—48 to 58 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; friable; common very fine roots throughout; few very fine constricted tubular pores; few distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium irregular very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 28 percent clay; moderately acid; clear smooth boundary.

2BC—58 to 66 inches; brown (7.5YR 5/4) silt loam; weak coarse subangular blocky structure; friable; few very fine roots throughout; common very fine and fine constricted tubular pores; few fine distinct pinkish gray (7.5YR 6/2) iron depletions in the matrix; few medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; about 26 percent clay and 10 percent sand; moderately acid; gradual smooth boundary.

2C—66 to 92 inches; brown (7.5YR 4/4) silt loam; massive with few diagonal cleavage planes; friable; few very fine roots throughout; common fine and medium constricted tubular pores; few prominent black (N 2.5/0) iron-manganese coatings lining root channels and pores; few fine distinct pinkish gray (7.5YR 6/2) iron depletions and common fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (7.5YR 2.5/1) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 24 percent clay and 12 percent sand; slightly acid.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: 40 to 80 inches
Thickness of loess: 40 to about 80 inches

Ap horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 or 3
Texture—silt loam

E horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—silt loam

Some pedons have an EB or a BE horizon.

Bt horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—silty clay loam

Bt/E and B't horizons:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—silty clay loam or silt loam

Some pedons have a BC horizon.

2BC and 2C horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silt loam

582B—Homen silt loam, 2 to 5 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Homen and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that contain more clay in the subsoil
* Areas of somewhat poorly drained soils
* Areas of moderately eroded soils

Dissimilar soils:
* Poorly drained Pierron soils in depressions

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

582B2—Homen silt loam, 2 to 5 percent slopes, eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Homen and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that contain more clay in the subsoil
* Areas of somewhat poorly drained soils
* Areas of severely eroded soils

Dissimilar soils:
* Poorly drained Pierron soils in depressions

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

582C2—Homen silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Homen and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Areas of well drained soils
* Areas of severely eroded soils

Dissimilar soils:
* Wakeland soils in small upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Hurst Series

Taxonomic Class: Fine, smectitic, mesic Aeric Chromic Vertic Epiaqualfs

Typical Pedon for MLRA 114

Hurst silt loam, nearly level in a cultivated field, at an elevation of about 385 feet above mean sea level; about 3 miles east of Hurst in Williamson County, Illinois; approximately 1,490 feet north and 1,200 feet west of the southeast corner of sec. 10, T. 8 S., R. 1 E.; USGS Herrin, IL. topographic quadrangle; lat. 37 degrees 50 minutes 15 seconds N. and long. 89 degrees 4 minutes 48 seconds W.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak medium granular structure; friable; many very fine roots; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with sharp boundaries; about 21 percent clay; slightly acid; abrupt smooth boundary.

E—7 to 12 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; moderate medium platy structure parting to weak fine subangular blocky; friable; common very fine roots; many fine faint light brownish gray (10YR 6/2) iron depletions and common medium faint yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with sharp boundaries; about 22 percent clay; strongly acid; clear smooth boundary.

Bt1—12 to 18 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine roots; common continuous distinct brown (10YR 4/3) clay films on faces of peds; many continuous prominent very pale brown (10YR 8/2) clay depletions on faces of peds; many fine and medium distinct light brownish gray (10YR 6/2) iron depletions and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine rounded very dark brown (7.5YR 2.5/2) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 30 percent clay; very strongly acid; clear smooth boundary.

2Bt2—18 to 28 inches; brown (10YR 5/3) silty clay; weak fine prismatic structure parting to weak medium angular blocky; very firm; common very fine roots; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many fine faint grayish brown (10YR 5/2) iron depletions and common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation with clear boundaries; about 43 percent clay; very strongly acid; gradual smooth boundary.

2Btg1—28 to 40 inches; grayish brown (2.5Y 5/2) silty clay loam; weak fine prismatic structure parting to weak medium angular blocky; very firm; few very fine roots; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds and few continuous prominent brown (10YR 4/3) clay films lining large channels; few fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation with clear boundaries; about 38 percent clay; very strongly acid; clear smooth boundary.

2Btg2—40 to 53 inches; grayish brown (2.5Y 5/2) silty clay; weak medium prismatic structure parting to weak medium angular blocky; very firm; few very fine roots; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common continuous prominent black (N 2.5/0) iron-manganese coatings on faces of peds and lining large channels; few fine prominent yellowish brown (10YR 5/6) and common fine distinct dark brown (10YR 3/3) masses of iron accumulation in the matrix; about 46 percent clay; moderately acid; clear smooth boundary.

2Btg3—53 to 62 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure parting to weak coarse angular blocky; firm; few very fine roots; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; many coarse irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 37 percent clay; slightly effervescent; slightly alkaline; clear smooth boundary.

2BCkg—62 to 76 inches; olive gray (5Y 4/2) silty clay; weak medium prismatic structure parting to moderate medium angular blocky; very firm; few very fine roots; common continuous distinct olive gray (5Y 4/2) pressure faces on faces of peds; common continuous distinct very dark brown (7.5YR 2.5/3) iron-manganese coatings on ped faces and lining large channels; few fine prominent yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine irregular black (7.5YR 2.5/1) and strong brown (7.5YR 5/6) masses of iron accumulation with diffuse boundaries; common fine and medium irregular white (10YR 8/1, dry) carbonate concretions; about 45 percent clay; strongly effervescent; slightly alkaline; clear smooth boundary.

2Cg—76 to 80 inches; grayish brown (2.5Y 5/2) silty clay loam; massive; firm; few continuous distinct dark grayish brown (10YR 4/2) clay films lining vertical channels; common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation along vertical channels; few fine prominent yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; common fine irregular very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; about 33 percent clay; slightly alkaline.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: 44 to more than 80 inches
Thickness of loess or other silty material: 0 to 24 inches
Depth to carbonates: In the lower part of the 2B horizon or in the 2BC and 2C horizons, where present

Ap or A horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 or 3
Texture—silt loam or silty clay loam

E horizon, where present:
Hue—10YR
Value—5 or 6 (6 to 8 dry)
Chroma—2, or 3 (if accompanied by redoximorphic features)
Texture—silt loam or silty clay loam

Some pedons, especially those having a loess cap of nearly 24 inches in thickness, have a BE or Bt horizon formed in the upper, silty material.

2Bt and 2Btg horizons:
Hue—10YR or 2.5Y, and 5Y for 2Btg horizon
Value—4 to 6
Chroma—3 or 4 for 2Bt horizon, and 1 or 2 for 2Btg horizon
Texture—silty clay loam, silty clay, or clay

Some pedons have a 2BC horizon

2C horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 4
Texture—silty clay loam or silty clay and may be stratified, and a sandy substratum phase that is loamy sand or sand is recognized

8338A—Hurst silt loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform: Lake Plain
Position on Landform: Broad Flat

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Lacustrine deposits
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Hurst and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Areas that have a thicker loess mantle
* Areas that are more sloping
Dissimilar soils:
* Areas of poorly drained Okaw soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

8338B—Hurst silt loam, 2 to 5 percent slopes, eroded, occasionally flooded

Setting

Landform: Lake Plain
Position on Landform: Shoulder Slope

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Lacustrine deposits
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Hurst and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that have a thicker loess mantle
* Soils that are more or less sloping
Dissimilar soils:
* Areas of moderately well drained Colp soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

8338C—Hurst silty clay loam, 5 to 10 percent slopes, eroded, occasionally flooded

Setting

Landform: Lake Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Lacustrine deposits
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Hurst and similar soils: 100 percent

Similar soils:
* Areas of severely eroded soils
* Areas that are more or less sloping

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

8489A—Hurst silt loam, sandy substratum, 0 to 2 percent slopes, occasionally flooded

Setting

Landform: Lake Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Lacustrine deposits
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Hurst, sandy substratum and similar soils: 100 percent

Similar soils:
* Areas that are more sloping
* Areas of moderately well drained soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Lakaskia Series

Taxonomic Class: Fine, mixed, superactive, mesic Vertic Argiaquolls

Typical Pedon for MLRA 114

Lakaskia silt loam, on a nearly level lake plain, in a cultivated field, at an elevation of about 412 feet above mean sea level; about 4 miles south of Germantown in Clinton County, Illinois); approximately 2,297 feet west and 2,510 feet south of the northeast corner of sec. 27, T. 1 N., R. 4 W.; USGS Breese, IL. topographic quadrangle; lat. 38 degrees 30 minutes 3 seconds N. and long. 89 degrees 31 minutes 27 seconds W.

Ap—0 to 8 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; weak thin platy structure parting to weak fine granular; friable; common very fine roots; few fine continuous tubular pores; few fine rounded strong brown (7.5YR 4/6) and black (N 2.5/0) iron-manganese nodules with sharp boundaries; neutral; abrupt smooth boundary.

A—8 to 13 inches; very dark gray (10YR 3/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine angular blocky structure; friable; common very fine roots; few fine continuous tubular pores; few fine rounded strong brown (7.5YR 4/6) and black (N 2.5/0) iron-manganese nodules with sharp boundaries; neutral; abrupt smooth boundary.

Btg1—13 to 17 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate medium prismatic structure; firm; common very fine roots; few fine constricted tubular pores; few distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; few fine prominent dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine irregular black (7.5YR 2.5/1) and strong brown (7.5YR 5/6) iron-manganese nodules with clear boundaries; neutral; clear smooth boundary.

Btg2—17 to 26 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure; firm; few very fine roots; many distinct dark grayish brown (2.5Y 4/2) clay films on faces of peds; few fine distinct light olive brown (2.5Y 5/4) masses of iron accumulation in the matrix; few fine and medium rounded black (7.5YR 2.5/1) and strong brown (7.5YR 4/6) iron-manganese nodules with clear boundaries; neutral; clear smooth boundary.

2Btkg1—26 to 36 inches; grayish brown (2.5Y 5/2) silty clay; weak medium prismatic structure; firm; many distinct dark grayish brown (2.5Y 4/2) clay films on faces of peds; common fine distinct light olive brown (2.5Y 5/6) masses of iron accumulation in the matrix; few fine and medium irregular black (7.5YR 2.5/1) and strong brown (7.5YR 5/6) iron-manganese nodules with clear boundaries; few coarse irregular light gray (10YR 7/2) carbonate concretions; slightly effervescent; slightly alkaline; gradual smooth boundary.

2Btkg2—36 to 50 inches; grayish brown (2.5Y 5/2) silty clay loam; weak coarse prismatic structure; firm; many distinct dark grayish brown (2.5Y 4/2) clay films on faces of peds; common fine distinct light olive brown (2.5Y 5/6) masses of iron accumulation in the matrix; few coarse rounded black (10YR 2/1) iron-manganese concretions and few fine irregular strong brown (7.5YR 5/6) iron-manganese nodules with clear boundaries; few coarse irregular light gray (10YR 7/2) carbonate concretions; slightly effervescent; slightly alkaline; clear smooth boundary.

2BCtkg—50 to 60 inches; olive gray (5Y 5/2) silty clay loam; weak medium prismatic structure; firm; common distinct dark grayish brown (2.5Y 4/2) clay films on vertical faces of peds and lining root channels; few shiny nonintersecting slickensides; common medium prominent dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; common fine and medium rounded black (10YR 2/1) iron-manganese concretions and common medium and coarse irregular strong brown (7.5YR 5/6) iron-manganese nodules with diffuse boundaries; common medium and coarse irregular light gray (10YR 7/2) carbonate concretions with white (10YR 8/1) coatings; slightly effervescent; slightly alkaline; clear smooth boundary.

2Cg—60 to 82 inches; light olive gray (5Y 6/2) clay loam; massive with horizontal planes of weakness; friable; few fine and medium vesicular pores; few distinct dark grayish brown (2.5Y 4/2) clay films lining root channels and filling pores; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium and coarse black (10YR 2/1) masses of iron manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; slightly effervescent; slightly alkaline; abrupt wavy boundary.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: 36 to 74 inches
Thickness of loess: About 18 to 34 inches
Thickness of the mollic epipedon: 10 to 18 inches
Depth to carbonates: Below 20 inches, where present

Ap and A horizons:
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 or 2
Texture—silt loam or silty clay loam

Btg horizon:
Hue—10YR, 2.5Y, or neutral
Value—3 to 6
Chroma—0 to 2
Texture—silty clay loam or silty clay

2Btkg, 2BCtkg, 2Btg and 2BCg horizons, where present:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam or silty clay

2C horizons, where present:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 4
Texture—silt loam, loam, silty clay loam, clay loam, or silty clay

468A—Lakaskia silt loam, 0 to 2 percent slopes

Setting

Landform: Lake Plain
Position on Landform: Broad Flat

Soil Properties and Qualities

Drainage: Poorly drained
Dominant parent material: Lacustrine deposits
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Lakaskia and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that have a thicker loess mantle
* Soils that contain more or less clay in the subsoil
* Areas of somewhat poorly drained soils
Dissimilar soils:
*Areas of somewhat poorly drained Bartelso soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Landes Series

Taxonomic Class: Coarse-loamy, mixed, superactive, mesic Fluventic Hapludolls

Typical Pedon for MLRA 115B

Landes very fine sandy loam, gently sloping in a cultivated field, at an elevation of about 400 feet above mean sea level; about 3 miles northwest of New Hanover in Monroe County, Illinois; approximately 1,740 feet south and 2,800 feet west of intersection of railroad tracks and Steppig Road, sec. 25, T. 1 S., R. 11 W.; USGS Oakville, MO. - IL. topographic quadrangle; lat. 38 degrees 24 minutes 57 seconds N. and long. 90 degrees 16 minutes 2 seconds W.

Ap—0 to 10 inches; very dark gray (10YR 3/1) very fine sandy loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; friable; many very fine and few fine roots; few very fine tubular pores; slightly acid; abrupt smooth boundary.

A—10 to 14 inches; very dark gray (10YR 3/1) very fine sandy loam, dark grayish brown (10YR 4/2) dry; moderate fine subangular blocky structure; very friable; common very fine and few fine roots; common very fine and fine tubular pores; common faint black (10YR 2/1) organic coatings on faces of peds; neutral; clear smooth boundary.

AB—14 to 18 inches; dark brown (10YR 3/3) very fine sandy loam, brown (10YR 5/3) dry; weak fine subangular blocky structure; very friable; common very fine roots and few fine roots; few very fine tubular pores; few distinct black (10YR 2/1) organic coatings on faces of peds; neutral; clear smooth boundary.

Bw1—18 to 30 inches; brown (10YR 4/3) very fine sandy loam; weak fine subangular blocky structure; very friable; few very fine and fine roots; common very fine and fine tubular pores; few faint dark brown (10YR 3/3) organo-clay films on faces of peds; neutral; gradual smooth boundary.

Bw2—30 to 39 inches; brown (10YR 4/3) very fine sandy loam; weak medium subangular blocky structure; very friable; few very fine and fine roots; few very fine tubular pores; few distinct brown (10YR 4/3) clay films in root channels and in pores; neutral; gradual smooth boundary.

BC—39 to 47 inches; brown (10YR 4/3) loamy very fine sand; weak medium subangular blocky structure; very friable; few very fine roots; slightly acid; clear smooth boundary

C—47 to 80 inches; brown (10YR 5/3) very fine sand; single grain; loose; few very fine roots; neutral.

MLRA Series Range in Characteristics

Depth to the base of soil development: 22 to 40 inches
Thickness of the mollic epipedon: 10 to 20 inches
Depth to carbonates: Some pedons contain carbonates within a depth of 40 inches.

Particle-size control section: Contains between 50 and 90 percent sand and the dominant sand size is fine or very fine.

Ap and A horizons:
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 to 3
Texture—It typically is fine sandy loam, very fine sandy loam or sandy loam, and less commonly is loam, loamy fine sand, loamy very fine sand, loamy sand or silt loam.

Bw horizon and BC horizon, where present:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture—It is loam, fine sandy loam, very fine sandy loam, sandy loam, loamy fine sand or loamy very fine sand. Many pedons are stratified. Rock fragment (fine gravel) content ranges from 0 to 10 percent.

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—1 to 4
Texture—It is sand, fine sand, very fine sand, loamy sand, loamy fine sand, loamy very fine sand, sandy loam, fine sandy loam, very fine sandy loam, loam or silt loam and is stratified in many pedons. Rock fragment (fine gravel) content ranges from 0 to 10 percent.

8304B—Landes very fine sandy loam, 2 to 5 percent slopes, occasionally flooded

Setting

Landform: Natural Levee

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Alluvium
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Landes and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils with strata that contain more clay
* Areas that are more sloping
Dissimilar soils:
* Areas of poorly drained soils in small depressions

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Lenzburg Series

Taxonomic Class: Fine-loamy, mixed, active, calcareous, mesic Alfic Udarents

Typical Pedon for MLRA 114

Lenzburg gravelly silty clay loam, in a wooded area, in Pyramid State Park, on a south-facing slope, of 35 percent at an elevation of about 450 feet above mean sea level; about 3 miles northwest of Pyatts in Perry County, Illinois; about 2,280 feet west and 100 feet south of the center of sec. 10, T. 6 S., R. 3 W.; USGS Pinckeyville, IL. topographic quadrangle; lat. 38 degrees 1 minute 4 seconds N. and long. 89 degrees 25 minutes 35 seconds W.

A—0 to 3 inches; mixed very dark gray (10YR 3/1) and dark yellowish brown (10YR 4/4) gravelly silty clay loam, gray (10YR 5/1) and light yellowish brown (10YR 6/4) dry; weak coarse granular structure; friable; common fine and medium roots; about 20 percent rock fragments of coal, sandstone, shale, and limestone; strongly effervescent; moderately alkaline; abrupt irregular boundary.

C1—3 to 16 inches; mixed gray (10YR 6/1) and yellowish brown (10YR 5/6) silty clay loam; weak medium subangular blocky structure; firm; few fine and medium roots; about 4 percent rock fragments; slightly effervescent; moderately alkaline; gradual smooth boundary.

C2—16 to 26 inches; mixed brown (7.5YR 5/2) and yellowish brown (10YR 5/6) silty clay loam; massive; firm; few very fine and medium roots; few medium prominent light olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; about 6 percent rock fragments; common pockets of black (N 2.5/0) clayey shale approximately 1 inch across; slightly effervescent; slightly alkaline; clear irregular boundary.

C3—26 to 60 inches; mixed yellowish brown (10YR 5/6) and gray (10YR 6/1) channery silty clay loam; massive; firm; few very fine and fine roots; about 30 percent rock fragments of weathered and unweathered shale; strongly effervescent; moderately alkaline.

MLRA Series Range in Characteristics

Depth to bedrock: More than 5 feet
Depth to carbonates: The control section is slightly alkaline or moderately alkaline and contains carbonates.

A horizon:
Hue—10YR, 2.5Y or 5Y
Value—2 to 5 (4 to 7 dry)
Chroma—typically 2 to 4, but ranging from 1 to 6
Texture—silt loam, silty clay loam, clay loam, or loam; or the gravelly, stony, or channery analogs

Some pedons have an AC horizon.

C horizon:
Hue—dominant colors are in hue of 7.5YR or 10YR
Value—4 to 6, and some pedons have color value of 2 or 3
Chroma—3 or 4
Texture—silty clay loam, silt loam, loam, silty clay, or clay loam; or the channery, gravelly, or cobbly analogs - Thin strata or small pockets of coarser or finer textured material are in some pedons.

An acid substratum phase has been recognized. Below a depth of 48 inches it contains refuse material from the coal washing operation. The material is a mixture of mineral and coal fragments and contains a high content of pyrite which releases sulfur upon oxidation.

871B—Lenzburg gravelly silty clay loam, 1 to 7 percent slopes, stony

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Mine spoil and earth fill
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Lenzburg and similar soils: 100 percent

Similar soils:
* Soils that contain more rock fragments throughout

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

871D—Lenzburg gravelly silty clay loam, 7 to 18 percent slopes, stony

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Mine spoil and earth fill
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Lenzburg and similar soils: 100 percent

Similar soils:
* Soils that contain more rock fragments throughout

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

871G—Lenzburg gravelly silty clay loam, 18 to 70 percent slopes, stony

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Mine spoil and earth fill
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Lenzburg and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that contain more rock fragments throughout
Dissimilar soils:
* Small depressional areas that have wet soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

825B—Lenzburg silty clay loam, acid substratum, 1 to 7 percent slopes

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Mine spoil and earth fill
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Lenzburg, acid substratum and similar soils: 100 percent

Similar soils:
* Areas that have a thinner mantle of soil material

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Littleton Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Aquic Cumulic Hapludolls

Typical Pedon for MLRA 115B

Littleton silt loam, nearly level in a cultivated field, at an elevation of about 425 feet above mean sea level; about 1 mile north of Caseyville in St. Clair County, Illinois (map sheet Monks Mound SE, IL.); approximately 2,042 feet west and 2,010 feet north of the southeast corner of sec. 6, T. 2 N., R. 8 W.; USGS Monks Mound, IL. topographic quadrangle; lat. 38 degrees 38 minutes 55 seconds N. and long. 90 degrees 1 minute 45 seconds W.

Ap—0 to 10 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak medium granular structure; friable; common very fine and few fine roots; few fine tubular pores; few fine and medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; about 21 percent clay; slightly acid; abrupt smooth boundary.

A—10 to 21 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; very friable; many very fine and few fine roots; common very fine and fine tubular pores; about 23 percent clay; slightly acid; clear smooth boundary.

AB—21 to 33 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine subangular blocky structure parting to weak fine granular; friable; common very fine and few fine roots; few very fine and fine tubular pores; few

fine rounded black (10YR 2/1) iron-manganese nodules with clear boundaries; about 24 percent clay; slightly acid; clear smooth boundary.

Bw1—33 to 45 inches; dark grayish brown (10YR 4/2) silt loam; weak fine subangular blocky structure; friable; common very fine and few fine roots; common faint very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; common fine faint brown (10YR 4/3) and few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; few fine irregular very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 25 percent clay; slightly acid; gradual smooth boundary.

Bw2—45 to 58 inches; brown (10YR 4/3) silt loam; weak medium angular blocky structure; friable; few very fine roots; few very fine and fine tubular pores; few faint very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; common fine faint dark grayish brown (10YR 4/2) iron depletions and few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; common fine and medium irregular very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; about 26 percent clay; neutral; gradual smooth boundary.

C—58 to 80 inches; dark yellowish brown (10YR 4/4) silt loam; massive; friable; few very fine roots; common fine tubular pores; common medium distinct grayish brown (10YR 5/2) iron depletions and common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; about 23 percent clay; neutral.

MLRA Series Range in Characteristics

Depth to the base of the cambic horizon: Typically 35 to 50 inches, but ranges from 30 to 62 inches

Thickness of the mollic epipedon: 24 to 36 inches

Ap and A horizons:
- Hue—10YR
- Value—2 or 3 (4 or 5 dry)
- Chroma—1 to 3
- Texture—silt loam

Some pedons have a BA horizon

Bw horizon:
- Hue—10YR or 2.5Y
- Value—3 to 5
- Chroma—2 or 3
- Texture—silt loam, but thin subhorizons are silty clay loam in some pedons

Some pedons have a BC horizon.

C or Cg horizon:
- Hue—10YR, 2.5Y, or 5Y
- Value—4 to 6
- Chroma—1 to 4
- Texture—silt loam, but some pedons contain thin subhorizons of silty clay loam that contain less than 30 percent clay

81A—Littleton silt loam, 0 to 2 percent slopes

Setting

Landform: Alluvial Fan

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Slope alluvium
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Littleton and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that have a thinner mollic epipedon
* Soils that contain more sand throughout
* Soils with a dark buried soil

Dissimilar soils:
* Areas of well drained Worthen soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Marine Series

Taxonomic Class: Fine, smectitic, mesic Aeric Vertic Albaqualfs

Typical Pedon for MLRA 114

Marine silt loam - with a slope of 1 percent on a broad, slightly convex summit in a cultivated field at an elevation of about 500 feet above sea level; about 3 miles south of Highland in Madison County, Illinois; approximately 2,030 feet east and 650 feet south of the northwest corner of sec. 21, T. 3 N., R. 5 W.; USGS St. Jacob, IL. topographic quadrangle; lat. 38 degrees 41 minutes 18 seconds N. and long. 89 degrees 46 minutes 14 seconds W.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; many very fine roots; few very fine continuous tubular pores; few fine rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; strongly acid; abrupt smooth boundary.

E—9 to 17 inches; light brownish gray (10YR 6/2) silt loam, white (10YR 8/1) dry; weak thin platy structure; friable; common very fine roots; few very fine continuous pores; few fine prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few fine rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; very strongly acid; abrupt smooth boundary.

Bt1—17 to 25 inches; brown (10YR 4/3) silty clay; moderate medium prismatic structure parting to strong fine angular blocky; very firm; common very fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few fine faint grayish brown (10YR 5/2) iron depletions and few fine prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; common fine and medium rounded black (5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; very strongly acid; clear smooth boundary.

Bt2—25 to 34 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; very firm; few very fine roots; many distinct grayish brown (10YR 5/2) clay films on faces of peds; common fine distinct grayish brown (2.5Y 5/2) iron depletions and common medium prominent brownish yellow (10YR 6/8) masses of iron accumulation in the matrix; common fine and medium rounded dark reddish brown (5YR 2.5/2) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; very strongly acid; clear smooth boundary.

Btg1—34 to 43 inches; grayish brown (10YR 5/2) silty clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; many distinct grayish brown (10YR 5/2) clay films on faces of peds; common medium prominent light olive brown (2.5Y 5/4) and common coarse prominent brownish yellow (10YR 6/8) masses of iron accumulation in the matrix; few medium rounded black (N 2.5/0) iron-manganese nodules with strong brown (7.5YR 4/6) boundaries; very strongly acid; clear smooth boundary.

Btg2—43 to 52 inches; light grayish brown (2.5Y 6/2) silty clay loam; weak coarse prismatic structure; firm; few very fine roots; many faint grayish brown (2.5Y 5/2) clay films on faces of peds; common coarse prominent brownish yellow (10YR 6/8) and common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine and medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; slightly acid; gradual smooth boundary.

BCtg—52 to 62 inches; light brownish gray (2.5Y 6/2) silt loam; weak coarse subangular blocky structure; friable; few faint grayish brown (2.5Y 5/2) clay films on vertical faces of peds and few distinct dark grayish brown (10YR 4/2) clay films in root channels and in pores; common coarse prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine and medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; slightly acid; gradual smooth boundary.

2C—62 to 80 inches; brown (7.5YR 5/3) silt loam; massive; friable; many medium faint brown (7.5YR 5/2) iron depletions and many coarse distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 8 percent sand; neutral.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: More than 42 inches
Depth of loess: 55 to about 80 inches

Ap horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 or 3
Texture—silt loam or silt

E horizon:
Hue—10YR
Value—5 to 7
Chroma—1 or 2
Texture—silt or silt loam

Some pedons have a B/E horizon about 2 inches in thickness

Bt horizon:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—3 or 4
Texture—silty clay loam or silty clay

Btg horizon:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Texture—silty clay loam or silty clay, but grades to silt loam in the lower part in some pedons

BCtg or BCg horizon, where present:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Texture—silty clay loam or silt loam

C or 2C horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—5 to 7
Chroma—1 to 3
Texture—silt loam or loam

In pedons with less than 80 inches of loess, the lower part of the soil formed in silty pedisediment that contains a component of sand and/or the underlying Illinoian till that commonly contains a strongly developed paleosol. These horizons or strata typically are silt loam, loam, silty clay loam, or clay loam.

517A—Marine silt loam, 0 to 2 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Marine and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that contain less clay in the subsoil
* Soils that do not have an abrupt textural change
* Areas of poorly drained soils

Dissimilar soils:
*Areas of well drained Ruma soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

517B—Marine silt loam, 2 to 5 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Marine and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that contain less clay in the subsoil
* Soils that do not have an abrupt textural change
* Areas of moderately well drained soils

Dissimilar soils:
* Areas of well drained Ruma soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section

* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Mascoutah Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Typic Endoaquolls

Typical Pedon for MLRA 115B

Mascoutah silty clay loam - nearly level in a cultivated field at an elevation of about 428 feet above mean sea level; about 0.5 mile north of Mascoutah in St. Clair County, Illinois (map sheet Lebanon SE, IL.); approximately 500 feet west and 75 feet south of the center of sec. 30, T. 1 N., R. 6 W.; USGS Lebanon, IL. topographic quadrangle; lat. 38 degrees 30 minutes 4 seconds N. and long. 89 degrees 48 minutes 30 seconds W.

Ap—0 to 9 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate coarse granular structure; friable; many very fine and few fine roots; few fine rounded strong brown (7.5YR 5/6) iron-manganese nodules with sharp boundaries; about 29 percent clay; neutral; abrupt smooth boundary.

A—9 to 16 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine subangular blocky structure parting to moderate medium granular; friable; many very fine roots; few fine rounded strong brown (7.5YR 5/6) iron-manganese nodules with sharp boundaries; about 30 percent clay; neutral; clear smooth boundary.

AB—16 to 21 inches; very dark gray (10YR 3/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine subangular blocky structure; firm; common very fine roots; common continuous distinct black (10YR 2/1) organic coatings on faces of peds; few fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 31 percent clay; neutral; clear smooth boundary.

Bg—21 to 32 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine roots; many continuous distinct very dark gray (10YR 3/1) organic coatings on faces of peds; common fine distinct light olive brown (2.5Y 5/4) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 32 percent clay; neutral; clear smooth boundary.

Btg1—32 to 44 inches; grayish brown (2.5Y 5/2) silty clay loam; weak fine prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; common patchy distinct dark gray (10YR 4/1) clay films on faces of peds; common fine and medium distinct light olive brown (2.5Y 5/6) masses of iron accumulation in the matrix; few fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 31 percent clay; neutral; gradual smooth boundary.

Btg2—44 to 58 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium subangular blocky structure; friable; few very fine roots; few continuous distinct very dark gray (10YR 3/1) organo-clay films lining channels and pores; few patchy distinct dark gray (10YR 4/1) clay films on faces of peds; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with diffuse strong brown (7.5YR 4/6) boundaries and few fine and medium irregular dark reddish brown (5YR 3/4) masses of iron-manganese accumulation; very dark gray (10YR 3/1) krotovina; about 29 percent clay; neutral; gradual smooth boundary.

BCtg—58 to 66 inches; light brownish gray (2.5Y 6/2) silt loam; weak medium subangular blocky structure; friable; few continuous prominent very dark gray (10YR 3/1) organo-clay films in pores and channels; common fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular very dark brown (7.5YR 2.5/2) and few medium irregular dark reddish brown (5YR 3/4) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 4/6) boundaries; about 25 percent clay; slightly effervescent; slightly alkaline; gradual smooth boundary.

Cg—66 to 80 inches; gray (5Y 6/1) silt loam; massive; very friable; few continuous prominent very dark gray (10YR 3/1) organo-clay films lining pores and channels; common medium and coarse prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with diffuse strong

brown (7.5YR 4/6) boundaries; about 23 percent clay; slightly effervescent; slightly alkaline.

MLRA Series Range in Characteristics

Thickness of loess: More than 80 inches
Thickness of the mollic epipedon: 12 to 24 inches
Particle-size control section: Averages 27 to 35 percent clay and less than 7 percent sand
Depth to carbonates: Carbonates, where present, typically occur in the Cg horizon but they may occur in the lower part of the B horizon below a depth of 40 inches.

Ap and A horizons, and AB horizon, where present:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—2 or 3 (3 or 4 dry)
Chroma—0 or 1
Texture—silty clay loam

Bg and Btg horizons:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—3 to 5 in the upper part, and 4 to 6 in the lower part
Chroma—0 to 2
Texture—silty clay loam

BCtg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam or silt loam

Cg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—5 or 6
Chroma—0 to 2
Texture—silt loam, and is silty clay loam in the upper part of some pedons

385A—Mascoutah silty clay loam, 0 to 2 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Mascoutah *and similar soils:* 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that contain more clay in the subsoil
* Soils that contain less clay in the surface layer
* Areas of somewhat poorly drained soils
Dissimilar soils:
* *Areas of well drained Wakenda soils*

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

McFain Series

Taxonomic Class: Clayey over loamy, smectitic over mixed, superactive, mesic Fluvaquentic Endoaquolls

Typical Pedon for MLRA 115B

McFain silty clay, in a depressional, with grasses and scattered trees, at an elevation of about 410 feet above mean sea level, near the southeastern boundary of Frank Holton State Park in East St. Louis, Illinois (map sheet French Village SW, IL.; approximately 1,260 feet north and 170 feet east of the center of sec. 34, T. 1 N., R. 9 W.; USGS French Village, IL. topographic quadrangle; lat 38 seconds 34 minutes 57 seconds N. and long. 90 degrees 4 minutes 54 seconds W.

Ap—0 to 8 inches; very dark gray (10YR 3/1) silty clay, dark gray (10YR 4/1) dry; strong fine angular blocky structure parting to moderate medium granular; firm; many very fine and common fine roots; few fine rounded strong brown (7.5YR 5/6) masses of iron-manganese accumulation; common fine and medium white (10YR 8/1) shell fragments of mollusks; strongly effervescent; slightly alkaline; clear smooth boundary.

A—8 to 13 inches; very dark gray (10YR 3/1) silty clay, dark gray (10YR 4/1) dry; moderate fine prismatic structure parting to strong fine angular blocky; very firm; many very fine and common fine roots; common faint very dark gray (10YR 3/1) pressure faces on faces of peds; few fine rounded strong brown (7.5YR 5/6) masses of iron-manganese accumulation; common fine and medium white

(10YR 8/1) shell fragments of mollusks; strongly effervescent; slightly alkaline; clear smooth boundary.

Bg1—13 to 20 inches; dark gray (10YR 4/1) silty clay; weak medium prismatic structure parting to moderate medium angular blocky; very firm; many very fine and few fine roots; common distinct very dark gray (10YR 3/1) pressure faces on faces of peds; few fine irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation; common fine and medium white (10YR 8/1) shell fragments of mollusks; strongly effervescent; slightly alkaline; abrupt smooth boundary.

2Bg2—20 to 26 inches; dark gray (2.5Y 4/1) loam; moderate fine and medium subangular blocky structure; friable; many very fine and few fine roots; few very fine and fine constricted tubular pores; few distinct very dark gray (10YR 3/1) organic coatings lining root channels and pores; common fine and medium distinct grayish brown (10YR 5/2) masses of iron accumulation in the matrix; common fine irregular brown (7.5YR 4/4) masses of iron-manganese accumulation; few fine white (10YR 8/1) shell fragments of mollusks; strongly effervescent; moderately alkaline; clear smooth boundary.

2Bg3—26 to 34 inches; stratified dark grayish brown (2.5Y 4/2) very fine sandy loam and dark gray (2.5Y 4/1) silt loam; weak medium and coarse subangular blocky structure; very friable; common very fine roots; common fine and medium continuous tubular pores; few distinct very dark gray (10YR 3/1) organic coatings lining root channels and pores; common fine and medium prominent brown (7.5YR 4/4) masses of iron accumulation along root channels and pores; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; few fine white (10YR 8/1) shell fragments of mollusks; strongly effervescent; moderately alkaline; gradual smooth boundary.

2Cg1—34 to 52 inches; stratified dark grayish brown (2.5Y 4/2) very fine sandy loam and gray (2.5Y 5/1) loam; massive; very friable; few very fine roots; few fine and medium continuous tubular pores; few prominent very dark brown (7.5YR 2.5/2) iron-manganese coatings lining root channels and pores; common fine and medium prominent brown (7.5YR 4/4) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; few fine white (10YR 8/1) shell fragments of mollusks; strongly effervescent; moderately alkaline; clear smooth boundary.

2Cg2—52 to 80 inches; stratified dark grayish brown (2.5Y 4/2) loamy very fine sand and dark gray (2.5Y 4/1) silt loam; massive; very friable; few very fine roots; common medium faint gray (2.5Y 5/1) iron depletions and few fine distinct olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; slightly effervescent; slightly alkaline.

MLRA Series Range in Characteristics

Depth to the base of soil development: Commonly 30 to 55 inches
Thickness of the mollic epipedon: 10 to 20 inches, and extends into the upper part of the Bg horizon in some pedons
Thickness of the slackwater sediments: 14 to 30 inches
Depth to carbonates: In the loamy alluvium, and shells of mollusks are common. Some pedons do not contain carbonates in the 2Cg horizon

Ap and A horizons:
Hue—10YR or neutral
Value—2 or 3 (3 to 5 dry)
Chroma—0 or 1
Texture—silty clay or silty clay loam

Bg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silty clay, or silty clay loam that contains more than 35 percent clay

2Bg or 2Bkg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silt loam, loam, or fine sandy loam

2Cg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—stratified silty clay loam to very fine sand

1248A—McFain silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Very poorly drained
Dominant parent material: Alluvium
Flooding frequency: Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit,

such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

McFain and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that do not contain carbonates
* Soils that contain more clay in the subsoil and/or substratum

Dissimilar soils:
* Well drained Landes soils on natural levees

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Meadowbank Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Typic Argiudolls

Typical Pedon for MLRA 114

Meadowbank silt loam - with a 2 percent slope in a cultivated field at an elevation of about 410 feet above mean sea level; about 2 miles southeast of New Memphis in Clinton County, Illinois; approximately 700 feet west and 100 feet north of the southeast corner of sec. 7, T. 1 S., R. 5 W.; USGS Venedy, IL. topographic quadrangle; lat. 38 degrees 27 minutes 7 seconds N. and long. 89 degrees 41 minutes 21 seconds W.

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; many very fine and few fine roots; 15 percent clay and 20 percent sand; slightly acid; clear smooth boundary.

A—9 to 13 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; weak fine subangular blocky structure parting to moderate fine granular; friable; common very fine and few fine roots; 19 percent clay and 19 percent sand; neutral; clear smooth boundary.

AB—13 to 17 inches; dark brown (10YR 3/3) silt loam, brown (10YR 4/3) dry; moderate medium subangular blocky; friable; few very fine roots; few faint very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; 23 percent clay and 18 percent sand; neutral; clear smooth boundary.

Bt1—17 to 25 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; few very fine roots; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; 29 percent clay and 14 percent sand; neutral; clear smooth boundary.

Bt2—25 to 34 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium prismatic structure; friable; few very fine roots; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; 31 percent clay and 17 percent sand; slightly acid; clear smooth boundary.

2Bt3—34 to 40 inches; dark yellowish brown (10YR 4/4) loam; moderate medium prismatic structure; friable; few very fine roots; common distinct dark brown (7.5YR 3/2) organo-clay films on faces of peds; 24 percent clay and 37 percent sand; slightly acid; clear smooth boundary.

2Bt4—40 to 45 inches; dark yellowish brown (10YR 4/4) sandy loam; moderate medium prismatic structure; friable; few very fine roots; common distinct dark brown (7.5YR 3/3) organo-clay films on faces of peds; 17 percent clay and 56 percent sand; moderately acid; clear smooth boundary.

2BCt—45 to 53 inches; brown (7.5YR 4/4) sandy loam; weak medium and coarse prismatic structure; friable; few very fine roots; few distinct dark brown (7.5YR 3/3) organo-clay films on faces of peds; 13 percent clay and 72 percent sand; moderately acid; clear smooth boundary.

2E&Bt—53 to 80 inches; dark yellowish brown (10YR 4/4) loamy sand (E part); brown (7.5YR 4/4) sandy loam lamella (Bt part); single grain and loose (E part); massive and very friable (Bt part); few very fine roots; common distinct dark brown (7.5YR 3/4) clay bridges (Bt part); lamellae are individually 1/2 to 2 inches thick; thicker lamella have weak medium blocky structure; combined thickness of lamellae is about 8 inches; slightly acid.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: 60 to more than 80 inches
Thickness of the mollic epipedon: 10 to 19 inches
Thickness of loess or other silty material: 24 to 40 inches
Depth to carbonates: More than 72 inches, where present
Content of rock fragments: 0 to 10 percent by volume in the 2Bt and 2E&Bt horizons

Ap, A, and AB horizons:
Hue—10YR

Value—2 or 3 (4 or 5 dry)
Chroma—2 or 3
Texture—silt loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—silty clay loam

2Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—clay loam, loam, or sandy loam

2E&Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—sandy loam, loamy sand, or sand

Some pedons have a 2C horizon within a depth of 80 inches.

8436B—Meadowbank silt loam, 2 to 5 percent slopes, occasionally flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Alluvium
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Meadowbank and similar soils: 100 percent

Similar soils:
* Soils that contain more sand in the upper part
* Areas that are more or less sloping

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Menfro Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon for MLRA 115B

Menfro silt loam, gently sloping, in a cultivated field, about 1.5 miles northwest of O'Fallon in St. Clair County, Illinois (map sheet O'Fallon NE, IL.); approximately 1,500 feet north and 1,500 feet east of the center of sec. 24, T. 2 N., R. 8 W.; USGS O'Fallon IL. topographic quadrangle; lat. 38 degrees 36 minutes 42 seconds N. and long. 89 degrees 55 minutes 58 seconds W.

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate very fine granular structure; friable; many very fine and few fine roots; about 22 percent clay; moderately acid; abrupt smooth boundary.

E—7 to 10 inches; yellowish brown (10YR 5/4) silt loam, light yellowish brown (10YR 6/4) dry; moderate medium platy structure parting to moderate very fine subangular blocky; friable; common very fine roots; common fine continuous tubular pores; about 24 percent clay; moderately acid; abrupt smooth boundary.

Bt1—10 to 18 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; firm; common very fine roots; few fine continuous tubular pores; many faint dark yellowish brown (10YR 4/4) clay films on faces of peds; about 32 percent clay; moderately acid; clear smooth boundary.

Bt2—18 to 35 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine roots; few fine continuous tubular pores; many distinct brown (10YR 4/3) clay films on faces of peds; about 31 percent clay; moderately acid; gradual smooth boundary.

Bt3—35 to 50 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; few very fine roots; few very fine and fine continuous tubular pores; common distinct brown (10YR 4/3) clay films on faces of peds; about 30 percent clay; moderately acid; gradual smooth boundary.

Bt4—50 to 62 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium subangular blocky structure; friable; few very fine roots; few very fine and fine vesicular and tubular pores; few distinct

brown (10YR 4/3) clay films on vertical faces of peds; about 28 percent clay; moderately acid; gradual smooth boundary.

BCt—62 to 70 inches; dark yellowish brown (10YR 4/4) silt loam; weak coarse subangular blocky structure; friable; few very fine roots; common very fine and fine vesicular and tubular pores; few distinct brown (10YR 4/3) clay films lining root channels and pores; about 24 percent clay; slightly acid; gradual smooth boundary.

C—70 to 80 inches; dark yellowish brown (10YR 4/4) silt loam; massive; very friable; few very fine roots; common very fine and fine vesicular and tubular pores; very few faint brown (10YR 4/3) clay films lining root channels and pores; about 20 percent clay; slightly acid.

MLRA Series Range in Characteristics

Thickness of the solum: Typically 50 to 70 inches, but ranges from 30 to 100 inches
Thickness of loess: 6 to 20 feet or more

The A horizon, where present, has hue of 10YR, value of 2 to 4, and chroma of 2 to 4; and is about 1 to 4 inches thick.

Ap horizon:
Hue—10YR
Value—3 to 5 (6 or 7 dry)
Chroma—2 to 4
Texture—silt loam

E horizon, where present:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam

The BE horizon, where present, has hue of 10YR or 7.5YR, value of 4, and chroma of 3 or 4. It is silt loam or silty clay loam.

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam

C horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam or silty clay loam

79B—Menfro silt loam, 2 to 5 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Menfro and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Areas of moderately well drained soils
* Soils with a darker surface layer
* Areas with more or less slope

Dissimilar soils:
* Small areas that are severely eroded

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

79C2—Menfro silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Menfro and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Areas of moderately well drained soils
* Small areas that are severely eroded
* Areas with more or less slope
Dissimilar soils:
* Wakeland soils in small upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

79C3—Menfro silt clay loam, 5 to 10 percent slopes, severely eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Menfro and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Areas of moderately well drained soils
* Small areas that are moderately eroded
* Areas with more or less slope
Dissimilar soils:
* Wakeland soils in small upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

79D2—Menfro silt loam, 10 to 18 percent slopes, eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Menfro and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Areas of moderately well drained soils
* Areas with more or less slope
Dissimilar soils:
* Wakeland soils in upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

79D3—Menfro silty clay loam, 10 to 18 percent slopes, severely eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Menfro and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Areas of moderately well drained soils
* Areas with more or less slope
Dissimilar soils:
* Wakeland soils in upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

79F—Menfro silt loam, 18 to 35 percent slopes

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Menfro and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that contain less clay in the subsoil
* Areas that are moderately eroded
Dissimilar soils:
* Wakeland soils in upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

79F3—Menfro silty clay loam, 18 to 35 percent slopes, severely eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Menfro and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that contain less clay in the subsoil
* Soils that are moderately eroded
Dissimilar soils:
* Wakeland soils in upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

79G—Menfro silt loam, 35 to 60 percent slopes

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Menfro and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that contain less clay in the subsoil
* Soils that are less sloping

Dissimilar soils:
* Areas that are severely eroded

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

5079C—Menfro silt loam, karst, 5 to 12 percent slopes, severely eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Menfro, karst and similar soils: 100 percent

Similar soils:
* Soils that contain carbonates in the substratum
* Soils that contain more clay in the surface horizon
* Areas of moderately well drained soils
* Areas between the sinks that are less sloping

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

5079D—Menfro silt loam, karst, 12 to 25 percent slopes, severely eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Menfro, karst and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that contain more clay in the surface horizon
* Areas of moderately well drained soils
* Areas between the sinks that are less sloping
Dissimilar soils:
* Wilbur soils in the bottom of the sinks

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

5079G—Menfro silt loam, karst, 25 to 60 percent slopes

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Menfro, karst and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that contain more clay in the surface horizon
* Soils that contain less clay in the subsoil
Dissimilar soils:
* Wilbur soils in the bottom of the sinks

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

2079D—Menfro-Urban land complex, 8 to 15 percent slopes

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Menfro and similar soils: 50 percent
Urban land: 40 percent
Dissimilar soils: 10 percent

Similar soils:
* Areas of moderately well drained soils
* Areas that are moderately eroded
* Areas that are more or less sloping
Dissimilar soils:
* Wakeland soils in upland drainageways
Urban land:
* Areas covered by buildings, dwellings, roads, streets, parking lots, and lawns and gardens

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

2079E—Menfro-Urban land complex, 15 to 25 percent slopes

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Menfro and similar soils: 50 percent
Urban land: 40 percent
Dissimilar soils: 10 percent

Similar soils:
* Areas that are more or less sloping
Dissimilar soils:
* Wakeland soils in upland drainageways
Urban land:
* Areas covered by buildings, dwellings, roads, streets, parking lots, and lawns and gardens

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Millstadt Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Aeric Epiaqualfs

Typical Pedon for MLRA 114

Millstadt silt loam, nearly level, on a lake terrace tread, in a cultivated field, at an elevation of about 412 feet above mean sea level; about 1.5 mile south of New Athens in St. Clair County, Illinois (map sheet New Athens West/SE, IL.); approximately 2,200 feet east and 2,380 feet south of the northwest corner of sec. 4, T. 3 S., R. 7 W.; USGS New Athens West, IL. topographic quadrangle; lat. 38 degrees 18 minutes 5 seconds N. and long. 89 degrees 52 minutes 57 seconds W.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure; friable; many very fine roots throughout; few fine and medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 20 percent clay; neutral; abrupt smooth boundary.

E—9 to 14 inches; pale brown (10YR 6/3) silt loam, very pale brown (10YR 7/3) dry; moderate medium platy structure parting to weak fine granular; friable; common very fine roots throughout; few distinct very pale brown (10YR 8/2, dry) clay depletions on faces of peds; few fine faint light brownish gray (10YR 6/2) iron depletions in the matrix; common fine and medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 22 percent clay; slightly acid; clear smooth boundary.

EB—14 to 18 inches; pale brown (10YR 6/3) silt loam, very pale brown (10YR 7/3) dry; moderate fine subangular blocky structure; friable; common very fine roots between peds; many distinct very pale brown (10YR 8/2, dry) clay depletions on faces of peds; common fine faint light brownish gray (10YR 6/2) iron depletions and few fine faint dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 26 percent clay; very strongly acid; clear smooth boundary.

Bt1—18 to 28 inches; brown (10YR 4/3) silty clay loam; weak fine prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots between peds; many continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few fine faint grayish brown (10YR 5/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 33 percent clay; very strongly acid; clear smooth boundary.

Bt2—28 to 38 inches; brown (10YR 5/3) silty clay loam; moderate fine prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots between peds; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine faint grayish brown (10YR 5/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 31 percent clay; very strongly acid; gradual smooth boundary.

Bt3—38 to 53 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few

very fine roots between peds; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine and medium faint light brownish gray (10YR 6/2) iron depletions in the matrix; common medium distinct yellowish brown (10YR 5/6) and common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 30 percent clay; strongly acid; clear smooth boundary.

2Btg1—53 to 62 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots between peds; few discontinuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 38 percent clay; moderately acid; abrupt smooth boundary.

2Btg2—62 to 67 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure parting to moderate medium angular blocky; friable; common discontinuous distinct (10YR 4/2) clay films on faces of peds; few fine faint light brownish gray (2.5Y 6/2) iron depletions and common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation; about 30 percent clay and 10 percent sand; slightly acid; abrupt smooth boundary.

2Btg3—67 to 80 inches; grayish brown (2.5Y 5/2) silty clay; weak medium prismatic structure parting to moderate fine and medium angular blocky; very firm; common discontinuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few fine faint light brownish gray (2.5Y 6/2) iron depletions and common medium prominent yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation; about 42 percent clay; slightly effervescent in places; neutral; clear smooth boundary.

2Btkg—80 to 100 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure parting to moderate medium angular blocky; firm; few continuous distinct very dark grayish brown (10YR 3/2) organo-clay coatings lining root channels; common discontinuous distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; common fine prominent yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) masses of iron-manganese accumulation and few fine irregular white (10YR 8/1, dry) masses of carbonate accumulation; several thin strata of brown (10YR 4/3) silt loam; about 38 percent clay; strongly effervescent; slightly alkaline.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: 60 to more than 80 inches
Depth to carbonates: More than 48 inches, where present
Thickness of loess: Typically 36 to about 70 inches

Ap horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 or 3
Texture—silt loam

E horizon, and EB horizon, where present:
Hue—10YR
Value—4 to 6 (6 to 8 dry)
Chroma—2 or 3
Texture—silt loam or silty clay loam

Bt horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—silty clay loam or silt loam

2Bt horizon, and 2BC and 2C horizons, where present:
Hue—7.5YR, 10YR, 2.5Y, or 5Y
Value—4 to 7
Chroma—2 to 4
Texture—clay, silty clay, silty clay loam, or silt loam

423A—Millstadt silt loam, 0 to 2 percent slopes

Setting

Landform: Lake Terrace
Position on Landform: Tread

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent materials: Loess overlying lacustrine deposits
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit,

such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Millstadt and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that contain more clay in the subsoil
* Soils that have an abrupt textural change
* Areas of poorly drained soils
Dissimilar soils:
* Areas of moderately well drained Redbud soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

423B—Millstadt silt loam, 2 to 5 percent slopes

Setting

Landform: Lake Terrace
Position on Landform: Tread

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Loess overlying lacustrine deposits
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Millstadt and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that contain more clay in the subsoil
* Soils that have an abrupt textural change
* Areas of moderately well drained soils
Dissimilar soils:
* Areas of poorly drained Floraville soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Morristown Series

Taxonomic Class: Loamy-skeletal, mixed, active, calcareous, mesic Typic Udorthents

Typical Pedon for MLRA 114

Morristown very stony silty clay loam, from an area of 18 to 60 percent slopes; in a pasture with scattered trees, at an elevation of about 470 feet above mean sea level; about 1 mile west of Duquoin in Perry County, Illinois; approximately 280 feet west and 1,200 feet south of the northeast corner of sec. 12, T. 6 S., R. 2 W.; USGS Pyatts, IL. topographic quadrangle; lat. 38 degrees 1 minute 15 seconds N. and long. 89 degrees 15 minutes 47 seconds W.

Ap—0 to 2 inches; yellowish brown (10YR 5/4) very stony silty clay loam; weak fine granular structure; friable; many very fine and fine roots between peds; common prominent very dark grayish brown (10YR 3/2) coatings on faces of peds; about 45 percent rock fragments consisting of 70 percent stones, 20 percent gravel and cobbles, and 10 percent boulders; moderately alkaline; clear irregular boundary.

AC—2 to 6 inches; yellowish brown (10YR 5/4) very stony clay loam; weak thin platy structure; friable; many very fine and fine roots in peds and few medium peds between peds; few faint dark brown (10YR 3/3) coatings on faces of peds; common fine and medium distinct grayish brown (10YR 5/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) and few fine prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; about 37 percent rock fragments consisting of 50 percent stones, 25 percent cobbles, 15 percent boulders, and 10 percent gravel; strongly effervescent; moderately alkaline; clear irregular boundary.

C—6 to 60 inches; brownish yellow (10YR 6/6) very bouldery clay loam; massive; friable; common very fine and few fine roots between peds to a depth of about 24 inches; few fine distinct brown (10YR 5/3) iron depletions; about 39 percent rock fragments consisting of 40 percent boulders, 30

percent stones, and 30 percent gravel and cobbles; strongly effervescent; moderately alkaline.

MLRA Series Range in Characteristics

Depth to bedrock: More than 5 feet
Rock fragments on the soil surface: Boulders and stones cover as much as 3 percent of the surface.
Content of rock fragments in the control section: Averages about 39 percent and ranges from 35 to 60 percent

A or Ap horizon:
Hue—10YR
Value—3 to 5 (5 to 7 dry)
Chroma—1 to 4
Texture—stony or very stony analogs of clay loam, or silty clay loam

C horizon:
Hue—7.9YR, 10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 6
Texture—clay loam, silty clay loam, or the gravelly to very bouldery analogs of these textures

821G—Morristown very stony silty clay loam, 35 to 70 percent slopes

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Mine spoil and earth fill *(fig. 3).*
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Morristown and similar soils: 85 percent
Dissimilar soils: 15 percent
Similar soils:
* Areas that are less sloping
* Soils that contain less rock fragments throughout

Dissimilar soils:
* Small depressional areas of wet soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Nameoki Series

Nameoki silty clay, with a slope of 1 percent, on a gently undulating flood plain, in a cultivated field, at an elevation of about 410 feet above mean sea level; about 1.5 miles northwest of Mitchell in Madison County, Illinois; approximately 1,900 feet south and 1,930 feet east of the northwest corner of sec. 28, T. 4 N., R. 9 W; USGS Wood River, IL.-MO. topographic quadrangle; lat. 38 degrees 46 minutes 7 seconds N. and long. 90 degrees 6 minutes 28 seconds W.

Taxonomic Class: Fine, smectitic, mesic Aquertic Hapludolls

Typical Pedon for MLRA 115B

Ap—0 to 8 inches; very dark gray (10YR 3/1) silty clay, dark grayish brown (10YR 4/2) dry; moderate fine angular blocky structure; firm; common very fine roots; neutral; abrupt smooth boundary.

A—8 to 12 inches; very dark grayish brown (10YR 3/2) silty clay, dark grayish brown (10YR 4/2) dry; strong fine angular blocky structure; very firm; common very fine roots; common faint very dark grayish brown (10YR 3/2) pressure faces on faces of peds; neutral; clear smooth boundary.

Bw1—12 to 16 inches; very dark grayish brown (10YR 3/2) silty clay, grayish brown (10YR 5/2) dry; strong fine and medium angular blocky structure; very firm; few very fine roots; many distinct very dark grayish brown (10YR 3/2) pressure faces on faces of peds; few fine faint brown (10YR 5/3) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.

Bw2—16 to 28 inches; brown (10YR 4/3) silty clay; moderate fine prismatic structure parting to strong fine and medium angular blocky; very firm; few very fine roots; many distinct dark grayish brown (10YR 4/2) pressure faces on faces of peds; common fine faint grayish brown (10YR 5/2) iron depletions and few fine faint yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.

2Btg1—28 to 41 inches; dark grayish brown (10YR 4/2) stratified clay loam and silty clay loam; weak

Figure 3.—An area of Morristown soils that was surface mined for coal before reclamation laws.

medium prismatic structure parting to weak medium subangular blocky; firm; common very fine roots; common very fine and fine continuous tubular pores; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; common fine distinct dark yellowish brown (10YR 4/6) and few fine faint brown (10YR 5/3) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; slightly acid; gradual smooth boundary.

2Btg2—41 to 48 inches; dark grayish brown (10YR 4/2) stratified silt loam and silty clay loam; weak medium prismatic structure parting to weak fine and medium subangular blocky; firm; common very fine roots; few very fine and fine continuous tubular pores; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; few fine distinct yellowish brown (10YR 5/6) and few fine faint brown (10YR 5/3) masses of iron accumulation in the matrix; common fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; neutral; clear smooth boundary.

2BCtg—48 to 54 inches; dark grayish brown (2.5Y 4/2) stratified silt loam and loam; weak medium subangular blocky structure; friable; few very fine roots; common fine and medium continuous tubular pores; few distinct very dark grayish brown (10YR 3/2) organo-clay films lining root channels and pores; common medium faint olive brown (2.5Y 4/3) masses of iron accumulation in the matrix; common fine irregular brown (7.5YR 4/4) masses of iron-manganese accumulation; neutral; gradual smooth boundary.

2Cg—54 to 72 inches; grayish brown (2.5Y 5/2) stratified silt loam and very fine sandy loam; massive; very friable; few very fine roots; common very fine and fine tubular and vesicular pores; common fine faint olive brown (2.5Y 4/3) masses of iron accumulation in the matrix; few fine irregular brown (7.5YR 4/4) masses of iron-manganese accumulation; neutral; abrupt smooth boundary.

2Ckg—72 to 90 inches; grayish brown (2.5Y 5/2) stratified very fine sandy loam and silt loam; massive; friable; few very fine and fine vesicular pores; common fine and medium prominent accumulation in the matrix; common fine and medium irregular light gray (10YR 7/2) masses of carbonate accumulation and few medium irregular light brownish gray (10YR 6/2) carbonate

concretions; strongly effervescent; slightly alkaline.

MLRA Series Range in Characteristics

Depth to the base of soil development: 40 to about 72 inches
Thickness of the mollic epipedon: 10 to 20 inches, and extends into the B horizon in many pedons
Depth to the loamy 2B horizon: 24 to 40 inches
Depth to carbonates: These soils typically do not have carbonates within the particle size control section, but some pedons contain carbonates in the loamy alluvium.

Ap and A horizons:
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 or 2
Texture—silty clay loam or silty clay, and includes clay in some pedons

Some pedons have an AB or BA horizon

Bw horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—2 to 4
Texture—silty clay or clay, but some subhorizons are silty clay loam or clay loam that contain more than 35 percent clay

2Bg, 2Btg, 2BCtg, or 2Bw horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4 in the upper part, and 1 to 4 in the lower part
Texture—silt loam, loam, silty clay loam, clay loam, sandy loam, fine sandy loam, or very fine sandy loam, and typically is stratified

Some pedons have a BC horizon

2C or 2Cg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 3
Texture—It typically is stratified with individual strata ranging from silty clay loam to very fine sand.

8592A—Nameoki silty clay, 0 to 2 percent slopes, occasionally flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Alluvium
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Nameoki and similar soils: 100 percent

Similar soils:
* Areas of poorly drained soils
* Soils that contain carbonates in the loamy alluvium
* Soils that have an abrupt textural change

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Negley Series

Taxonomic Class: Fine-loamy, mixed, active, mesic Typic Paleudalfs

Typical Pedon for MLRA 114

Negley loam, in a wooded area, at an elevation of about 600 feet above mean sea level; about 1 mile southeast of Grantfork in Madison County, Illinois; approximately 540 feet west and 1,160 feet north of the southeast corner of sec. 4, T. 4 N., R. 5 W.; USGS Grantfork, IL. topographic quadrangle; lat. 38 degrees 49 minutes 10 seconds N. and long. 89 degrees 39 minutes 24 seconds W.

A—0 to 3 inches; dark grayish brown (10YR 4/2) loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; many very fine and few fine roots; less than 5 percent gravel; moderately acid; clear smooth boundary.

E—3 to 7 inches; yellowish brown (10YR 5/4) loam, very pale brown (10YR 7/4) dry; weak fine granular structure; friable; common very fine and few fine roots; about 10 percent gravel; strongly acid; clear smooth boundary.

Bt1—7 to 12 inches; yellowish red (5YR 5/6) clay loam; moderate coarse subangular blocky structure; firm; common very fine and few fine roots; common distinct reddish brown (5YR 4/4) clay films on faces of peds; about 10 percent gravel; strongly acid; clear smooth boundary.

Bt2—12 to 22 inches; yellowish red (5YR 5/6) clay loam; moderate coarse subangular blocky structure; firm; common very fine and few fine roots; distinct reddish brown (5YR 4/4) clay films on faces of peds; about 10 percent gravel; strongly acid; clear smooth boundary.

Bt3—22 to 32 inches; yellowish red (5YR 5/6) clay loam; moderate coarse subangular blocky structure; firm; few very fine and fine roots; many distinct reddish brown (5YR 4/4) clay films on faces of peds; about 10 percent gravel; strongly acid; clear smooth boundary.

Bt4—32 to 39 inches; strong brown (7.5YR 5/6) clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; many distinct reddish brown (5YR 4/4) clay films on faces of peds; common medium distinct yellowish red (5YR 5/6) masses of iron accumulation in the matrix; about 10 percent gravel; strongly acid; clear smooth boundary.

Bt5—39 to 50 inches; strong brown (7.5YR 5/6) sandy clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; common distinct brown (7.5YR 5/4) clay films on faces of peds; common medium prominent reddish brown (5YR 4/4) and common medium distinct reddish yellow (7.5YR 6/8) masses of iron accumulation in the matrix; about 10 percent gravel; moderately acid; clear smooth boundary.

Bt6—50 to 65 inches; yellowish red (5YR 4/6) gravelly clay loam; moderate coarse subangular blocky structure; firm; few very fine roots; common distinct reddish brown (5YR 4/4) clay films on faces of peds; common medium prominent reddish yellow (7.5YR 6/8) masses of iron accumulation in the matrix; common fine irregular dark brown (7.5YR 3/2) iron-manganese nodules with clear boundaries; about 25 percent gravel; moderately acid; clear smooth boundary.

Bt7—65 to 80 inches; yellowish red (5YR 4/6) gravelly sandy clay loam; weak coarse subangular blocky structure; firm; few very fine roots; few distinct reddish brown (5YR 4/4) clay films on faces of peds; common medium and coarse prominent reddish yellow (7.5YR 6/8) masses of iron accumulation in the matrix; common fine irregular dark brown (7.5YR 3/2) iron-manganese nodules with clear boundaries; about 30 percent gravel; moderately acid.

MLRA Series Range in Characteristics

Thickness of the solum: About 80 to 150 inches
Thickness of the loess mantle: 0 to 18 inches
Percent rock fragments in the solum: 5 to 35 percent
Depth to carbonates: Commonly present in the C horizon

A or Ap horizon:
Hue—7.5YR or 10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 to 4
Texture—commonly silt loam or loam, but some eroded areas are clay loam

Some pedons have A horizons 1 to 5 inches thick that have hue of 10YR, value of 2 or 3 (4 or 5 dry) and chroma of 2

E horizon, where present:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—2 to 5
Texture—loam or silt loam

BE or BA horizon, where present:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam, loam, clay loam, or their gravelly analogues

Bt horizon:
Hue—5YR or 7.5YR
Value—4 or 5
Chroma—3 to 8
Texture—loam, clay loam, sandy clay loam, or their gravelly analogues with subhorizons of sandy loam and sandy clay

BC horizon:
Hue—5YR, 7.5YR, or 10YR
Value—4 or 5
Chroma—3 to 8
Texture—sandy clay loam, sandy loam, coarse sandy loam, clay loam, or their gravelly analogues

C horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—It is stratified or has dominant textures of coarse sandy loam, gravelly sand, gravelly sandy loam, and gravelly loamy sand with lenses of finer textured material in some pedons.

585F2—Negley loam, 18 to 35 percent slopes, eroded

Setting

Landform: Ridge
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Outwash
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Negley and similar soils: 100 percent

Similar soils:
* Areas that are more or less sloping
* Areas that are more or less eroded

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Oconee Series

Taxonomic Class: Fine, smectitic, mesic Udollic Epiaqualfs

Typical Pedon for MLRA 115B

Oconee silt loam, on a north-facing slope, of 4 percent, in a cultivated field, at an elevation of about 560 feet above mean sea level; about 1.5 miles northwest of Grantfork in Madison County, Illinois; approximately 1,315 feet east and 2,245 feet north of the southwest corner of sec. 29, T. 5 N., R. 5 W.; USGS Grantfork, IL. topographic quadrangle; lat. 38 degrees 50 minutes 58 seconds N. and long. 89 degrees 41 minutes 17 seconds W.

Ap—0 to 8 inches; very dark gray (10YR 3/1) silt loam, grayish brown (10YR 5/2) dry; weak medium granular structure grading to weak thin platy in the lower part; very friable; common very fine roots; common very fine tubular pores within peds; few fine rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; slightly acid; abrupt smooth boundary.

E1—8 to 12 inches; dark grayish brown (10YR 4/2) silt loam, light gray (10YR 7/2) dry; moderate thick platy structure; very friable; few very fine roots; few very fine tubular pores within peds; many distinct brown (10YR 5/3) clay depletions in pores; many distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; few fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine and medium irregular very dark gray (5YR 3/1) iron-manganese nodules with sharp boundaries; moderately acid; clear smooth boundary.

E2—12 to 16 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; moderate fine and medium subangular blocky structure; friable; few very fine roots; common very fine pores within and between peds; many distinct brown (10YR 5/3) clay depletions in pores; many distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium rounded dark brown (7.5YR 3/2) iron-manganese nodules with clear boundaries; moderately acid; clear smooth boundary.

B/E—16 to 21 inches; brown (10YR 5/3) silty clay loam (Bt); strong very fine subangular blocky structure; firm; few very fine roots; common fine pores in the silty material between peds; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds and many prominent light brownish gray (10YR 6/2) clay depletions on faces of peds and in pores (E); many medium prominent strong brown (7.5YR 5/6) and few fine faint dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine and medium rounded dark brown (7.5YR 3/2) iron-manganese nodules with clear boundaries; strongly acid; clear irregular boundary.

Bt—21 to 29 inches; brown (10YR 5/3) silty clay; moderate medium prismatic structure parting to strong fine and medium angular blocky; very firm; few very fine roots between peds; few fine pores between peds; many prominent dark grayish brown (10YR 4/2) clay films on faces of peds; common medium faint grayish brown (10YR 5/2) iron depletions and common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; common fine and medium rounded black (5YR 2.5/1) iron-

manganese nodules with sharp boundaries; strongly acid; clear smooth boundary.

Btg1—29 to 38 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots between peds; few fine pores between peds; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium prominent strong brown (7.5YR 5/8) and common coarse prominent brownish yellow (10YR 6/8) masses of iron accumulation in the matrix; common fine and medium rounded black (5YR 2.5/1) iron-manganese nodules with sharp boundaries; strongly acid; clear smooth boundary.

Btg2—38 to 47 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; few fine pores between peds; many distinct grayish brown (10YR 5/2) clay films on faces of peds; common medium distinct light olive brown (2.5Y 5/6), common medium prominent yellowish brown (10YR 5/8), and few medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; moderately acid; clear smooth boundary.

Btg3—47 to 58 inches; light brownish gray (2.5Y 6/2) silty clay loam; weak coarse prismatic structure; firm; few fine pores between peds; many prominent very dark grayish brown (10YR 3/2) organic coatings lining root channels and filling pores; many distinct grayish brown (10YR 5/2) clay films on faces of peds; common medium and coarse prominent brownish yellow (10YR 5/8) and strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; common fine and medium irregular black (5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; moderately acid; clear smooth boundary.

C1—58 to 65 inches; brown (10YR 5/3) silt loam; massive; friable; few vertical cleavage planes; few fine vesicular pores; common distinct very dark grayish brown (10YR 3/2) organic coatings on faces of cleavage planes; many medium prominent yellowish brown (10YR 5/8) and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular black (5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; slightly acid; gradual smooth boundary.

C2—65 to 80 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; common fine and medium vesicular pores; few prominent very dark grayish brown (10YR 3/2) organic coatings lining root channels and filling pores; few fine distinct (10YR 5/2) iron depletions and few medium distinct yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few medium irregular black (10YR 2/1) iron-manganese nodules with sharp boundaries; neutral.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: More than 42 inches
Thickness of loess: Typically 55 to about 80 inches

Ap horizon:
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 or 2, and the range includes 3 for some eroded pedons
Texture—silt loam

E horizon:
Hue—10YR
Value—4 to 7
Chroma—1 or 2, and the range includes 3 if accompanied by redoximorphic features
Texture—silt loam

Bt and/or Btg horizon:
Hue—10YR in the upper part, and 10YR or 2.5Y in the lower part
Value—4 to 6
Chroma—2 to 4 in the upper part, and 1 to 6 in the lower part
Texture—silty clay loam or silty clay

BC or BCg horizon, where present:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—silty clay loam or silt loam

C or 2C horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—typically 1 to 3, but ranging from 1 to 8
Texture—silt loam

113A—Oconee silt loam, 0 to 2 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Somewhat poorly drained

Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Oconee and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Areas of poorly drained soils
* Soils that have a mollic epipedon
Dissimilar soils:
* Darmstadt soils that have a natric horizon

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

113B—Oconee silt loam, 2 to 5 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Oconee and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Areas of moderately drained soils
* Soils that have a mollic epipedon
* Soils that have a light-colored surface layer
Dissimilar soils:
* Darmstadt soils that have a natric horizon

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

882A—Oconee-Darmstadt-Coulterville silt loams, 0 to 2 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Oconee and similar soils: 40 percent
Darmstadt and similar soils: 30 percent
Coulterville and similar soils: 20 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that have a darker surface horizon
* Soils that contain less clay in the subsoil
Dissimilar soils:
* Piasa soils that have a natric horizon
* Areas that have a concentration of exchangeable sodium near the surfact of the soil

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section

* "Soil Properties" section

882B—Oconee-Coulterville-Darmstadt silt loams, 2 to 5 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Oconee and similar soils: 40 percent
Coulterville and similar soils: 30 percent
Darmstadt and similar soils: 20 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that have a darker surface horizon
* Areas of moderately eroded soils
Dissimilar soils:
* Areas of severely eroded soils that have a concentration of exchangeable sodium at or near the surface of the soil

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Okaw Series

Taxonomic Class: Fine, smectitic, mesic Chromic Vertic Albaqualfs

Typical Pedon for MLRA 114

Okaw silt loam, with a slope of one percent, on a lake plain, in a cultivated field, at an elevation of about 390 feet above mean sea level; about 1.25 miles northwest of Vergennes in Jackson County, Illinois; approximately 1,944 feet west and 105 feet north of the southeast corner of sec. 8, T. 7 S., R. 2 W.; USGS Vergennes, IL. topographic quadrangle; lat. 37 degrees 55 minutes 26 seconds N. and long. 89 degrees 20 minutes 48 seconds W.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate very fine and fine granular structure; friable; common very fine roots; few very fine constricted tubular pores; few fine and medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; slightly acid; abrupt smooth boundary.

Eg1—7 to 11 inches; light brownish gray (10YR 6/2) silt loam, very pale brown (10YR 8/2) dry; moderate thin platy structure parting to weak fine granular; friable; few very fine roots; many very fine and fine continuous tubular pores; common fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; common fine and medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; strongly acid; clear smooth boundary.

Eg2—11 to 15 inches; light brownish gray (10YR 6/2) silt loam, very pale brown (10YR 8/2) dry; weak thin platy structure parting to weak fine granular; friable; few very fine roots; many very fine and fine pores; common fine prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; many fine and medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; very strongly acid; abrupt wavy boundary.

2Btg—15 to 31 inches; grayish brown (10YR 5/2) silty clay; weak fine prismatic structure parting to weak fine angular blocky; very firm; few very fine roots; common faint grayish brown (10YR 5/2) clay films on faces of peds; few fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (5YR 2.5/1) iron-manganese nodules with sharp boundaries; light brownish gray (10YR 6/2) silt loam material in krotovinas and along cracks; very strongly acid; clear smooth boundary.

2Bg—31 to 41 inches; olive gray (5Y 5/2) silty clay; weak medium prismatic structure parting to weak medium and coarse angular and subangular blocky; very firm; few very fine roots along ped faces; few prominent very dark brown (10YR 2/2) iron-manganese stains on faces of peds; few fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (5YR 2.5/1) iron-manganese nodules with clear strong

brown (7.5YR 4/6) boundaries; light brownish gray (10YR 6/2) silt loam material along cracks; very strongly acid; gradual smooth boundary.

2BCg—41 to 54 inches; olive gray (5Y 5/2) silty clay; weak coarse prismatic structure; very firm; few prominent very dark brown (10YR 2/2) iron-manganese stains on faces of peds; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium rounded black (5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; strongly acid; gradual smooth boundary.

2Cg1—54 to 63 inches; olive gray (5Y 5/2) silty clay; massive; firm; common prominent very dark brown (10YR 2/2) iron-manganese stains on faces along some cleavage planes; many medium and coarse irregular black (10YR 2/1) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 4/6) boundaries; neutral; clear smooth boundary.

2Cg2—63 to 73 inches; olive gray (5Y 5/2) clay; massive; very firm; few prominent shiny slickensides and common distinct olive gray (5Y 4/2) pressure faces along vertical cleavage planes; common fine and medium irregular dark reddish brown (5YR 3/4) masses of iron-manganese accumulation with clear boundaries and few medium irregular black (10YR 2/1) iron-manganese nodules with diffuse strong brown (7.5YR 4/6) boundaries; slightly alkaline; gradual smooth boundary.

2Cg3—73 to 102 inches; light olive gray (5Y 6/2) silty clay loam; massive; firm; few distinct shiny slickensides and few faint olive gray (5Y 5/2) pressure faces along cleavage planes; common medium and coarse prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; many medium and coarse irregular black (10YR 2/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries in the upper 6 inches of the horizon; slightly alkaline.

MLRA Series Range in Characteristics

Depth to the base of soil development: 40 to 75 inches
Thickness of loess or other silty material: 10 to 20 inches
Depth to carbonates: In the 2Cg horizon, where present

Ap or A horizon:
Hue—10YR
Value—3 to 5, (6 or 7 dry)
Chroma—1 or 2
Texture—typically silt loam, but silty clay loam is within the range

Eg horizon:
Hue—10YR
Value—4 to 7
Chroma—1 or 2
Texture—silt loam, and less commonly silty clay loam

Some pedons have a B/E horizon less than 3 inches in thickness that is mostly Bt material with clay depletions on faces of peds.

2Btg and 2Bg horizons:
Hue—10YR, 2.5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silty clay or clay, and some pedons have subhorizons that are silty clay loam

2BCg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam, silty clay, or clay

2Cg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 or 2
Texture—silty clay loam, silty clay, or clay

8084A—Okaw silt loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform: Lake Plain
Position on Landform: Broad Flat

Soil Properties and Qualities

Drainage: Poorly drained
Dominant parent material: Lacustrine deposits
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Okaw and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that contain carbonates in the subsoil
* Areas of somewhat poorly drained soils
* Soils that have a darker surface horizon

Dissimilar soils:

* Areas of moderately well drained Colp soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Orion Series

Taxonomic Class: Coarse-silty, mixed, superactive, nonacid, mesic Aquic Udifluvents

Typical Pedon for MLRA 114/115B

Orion silt loam, nearly level, in a cultivated field, at an elevation of about 470 feet above mean sea level; about 2 miles west of Marine in Madison County, Illinois; approximately 300 feet east and 1,500 feet north of the center of sec. 30, T. 4 N., R. 6 W.; USGS Marine, IL. topographic quadrangle; lat. 38 degrees 46 minutes 7 seconds N. and long. 89 degrees 48 minutes 31 seconds W.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak medium granular structure; very friable; many very fine and few fine roots; few fine continuous tubular pores; about 22 percent clay; slightly acid; abrupt smooth boundary.

C1—7 to 14 inches; dark grayish brown (10YR 4/2) silt loam; massive; very friable; common very fine roots; few very fine and fine continuous tubular pores; few distinct very dark grayish brown (10YR 3/2) organic coatings lining root channels and pores; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; about 17 percent clay; slightly acid; gradual smooth boundary.

C2—14 to 35 inches; stratified brown (10YR 5/3) and dark grayish brown (10YR 4/2) silt loam; massive with moderate medium platy depositional strata; very friable; few very fine roots; common very fine and fine continuous tubular pores; common medium faint grayish brown (10YR 5/2) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; about 15 percent clay; moderately acid; clear smooth boundary.

Ab1—35 to 46 inches; very dark gray (10YR 3/1) silt loam; weak fine subangular blocky structure; friable; few very fine roots; few very fine continuous tubular pores; few fine faint dark gray (10YR 4/1) iron depletions; few fine irregular dark brown (7.5YR 3/4) masses of iron-manganese accumulation; about 25 percent clay; slightly acid; clear smooth boundary.

Ab2—46 to 54 inches; very dark gray (10YR 3/1) silt loam; weak medium subangular blocky structure; friable; few very fine roots; few very fine continuous tubular pores; few medium faint dark grayish brown (10YR 4/2) masses of iron accumulation in the matrix; few fine irregular dark brown (7.5YR 3/4) masses of iron-manganese accumulation; about 26 percent clay; slightly acid; clear smooth boundary.

Cg—54 to 66 inches; dark grayish brown (2.5Y 4/2) silt loam; massive; friable; few very fine roots; few very fine continuous tubular pores; common medium faint light brownish gray (2.5Y 6/2) and dark gray (2.5Y 4/1) iron depletions; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; about 26 percent clay; slightly acid; abrupt smooth boundary.

A'b1—66 to 76 inches; very dark gray (2.5Y 3/1) silty clay loam; moderate fine prismatic structure parting to weak fine angular blocky; firm; few faint very dark gray (2.5Y 3/1) pressure faces on faces of peds; few fine faint dark gray (2.5Y 4/1) iron depletions; few fine irregular dark brown (7.5YR 3/4) masses of iron-manganese accumulation and few fine rounded black (N 2.5/0) iron-manganese concretions; about 32 percent clay; neutral; gradual smooth boundary.

A'b2—76 to 95 inches; very dark gray (2.5Y 3/1) silty clay loam; strong fine and medium prismatic structure parting to moderate medium angular blocky; firm; common faint very dark gray (2.5Y 3/1) pressure faces on faces of peds; few fine irregular dark brown (7.5YR 3/4) masses of iron-manganese accumulation and few fine rounded black (N 2.5/0) iron-manganese concretions; about 38 percent clay; neutral.

MLRA Series Range in Characteristics

Depth to the Ab horizon: 20 to 40 inches

Ap or A horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 or 3
Texture—silt loam

In some pedons, thin individual strata have value of 3 and chroma of 1 in the Ap and C horizons.

C horizon:
- Hue—10YR
- Value—4 or 5
- Chroma—2 or 3
- Texture—typically silt loam stratified with thin layers of very fine sand or silt

Ab and A'b horizons:
- Hue—10YR or 2.5Y
- Value—2 or 3
- Chroma—1 or 2
- Texture—silt loam or silty clay loam, but in some pedons it is stratified with other textures

Bgb and Cg horizons, where present:
- Hue—10YR, 2.5Y, 5Y, or neutral
- Value—4 to 6
- Chroma—0 to 2
- Texture—silt loam, but may be stratified with textures that contain more sand than silt

3415A—Orion silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Alluvium
Flooding frequency: Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Orion and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that contain more clay in the recent alluvium
* Soils that have the dark buried soil below a depth of 40 inches

Dissimilar soils:
* Small areas of well drained soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

802B—Orthents, loamy, undulating

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Alluvium
Flooding frequency: None

A typical soil series description with range in characteristics is not included in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Orthents, loamy and similar soils: 100 percent

Similar soils:
* Soils that have fragments of diagnostic horizons
* Soils that contain more silt in the underlying layers

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

802D—Orthents, loamy, steep

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Alluvium

Flooding frequency: None

A typical soil series description with range in characteristics is not included in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Orthents, loamy and similar soils: 100 percent

Similar soils:
* Soils that have fragments of diagnostic horizons
* Soils that contain more silt in the underlying layers
* Soils that have slopes less than 5 percent

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

826D—Orthents, silty, acid substratum, rolling

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is not included in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Orthents, acid substratum and similar soils: 100 percent

Similar soils:
* Soils that have slopes less than 2 percent
* Soils that have fragments of diagnostic horizons
* Soils that contain more sand in the underlying layers
* Soils that are less acid in the substratum
* Areas of moderately well drained soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

801B—Orthents, silty, undulating

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is not included in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Orthents, silty and similar soils: 100 percent

Similar soils:
* Areas of moderately well drained soils
* Soils that have fragments of diagnostic horizons
* Soils that contain more sand in the underlying layers
* Soils that have carbonates in some part of the soil profile

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

801D—Orthents, silty, steep

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is not included in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Orthents, silty and similar soils: 100 percent

Similar soils:
* Soils that have slopes less than 5 percent
* Areas of moderately well drained soils
* Soils that have fragments of diagnostic horizons
* Soils that contain more sand in the underlying layers
* Soils that have carbonates in some part of the soil profile

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Otter Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Cumulic Endoaquolls

Typical Pedon for MLRA 114

Otter silt loam, nearly level, in a cultivated field, at an elevation of about 435 feet above mean sea level; about 4 miles northeast of Mascoutah in St. Clair County, Illinois (map sheet Trenton SW, IL.); approximately 250 feet north and 300 feet west of the southeast corner of sec. 23, T. 1 N., R. 6 W.; USGS Trenton, IL. topographic quadrangle; lat. 38 degrees 30 minutes 37 seconds N. and long. 89 degrees 43 minutes 30 seconds W.

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; many very fine roots; common fine constricted tubular pores; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; slightly acid; clear smooth boundary.

A1—9 to 21 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate fine granular structure; friable; common very fine roots; common very fine and fine continuous tubular pores; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; slightly acid; gradual smooth boundary.

A2—21 to 37 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate medium granular structure; friable; common very fine roots; few very fine continuous tubular pores; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; slightly acid; clear smooth boundary.

AB—37 to 45 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate fine subangular blocky structure; friable; few very fine roots; few very fine continuous tubular pores; common faint black (10YR 2/1) organic coatings on faces of peds; few fine faint dark grayish brown (10YR 4/2) iron depletions; common fine irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation; neutral; clear smooth boundary.

Bg—45 to 55 inches; dark grayish brown (10YR 4/2) silt loam; weak medium subangular blocky structure; friable; few very fine roots; few very fine continuous tubular pores; common distinct black (10YR 2/1) organic coatings on faces of peds; common fine faint dark gray (10YR 4/1) iron depletions and few fine distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation and few medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; neutral; gradual smooth boundary.

Cg1—55 to 72 inches; gray (2.5Y 5/1) silt loam; massive; friable; few very fine roots; few very fine vesicular and tubular pores; few distinct very dark gray (10YR 3/1) organo-clay films lining root channels and pores; common fine distinct light olive brown (2.5Y 5/4) and few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation and common medium and coarse rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; neutral; diffuse smooth boundary.

Cg2—72 to 80 inches; gray (2.5Y 5/1) silty clay loam; massive; firm; few very fine vesicular and tubular pores; few distinct very dark gray (10YR 3/1) organo-clay films lining root channels and pores; common fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular

strong brown (7.5YR 5/6) masses of iron-manganese accumulation and common medium and coarse rounded black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; neutral.

MLRA Series Range in Characteristics

Thickness of the solum: 24 to 50 inches
Thickness of the mollic epipedon: 24 to 50 inches
Depth to carbonates: In the Cg horizon, where present

Ap and A horizons:
Hue—7.5YR, 10YR, 2.5Y, or neutral
Value—2 or 3 (3 to 5 dry)
Chroma—0 to 2
Texture—typically silt loam, but some pedons contain subhorizons of loam or silty clay loam

Bg horizon or a transition horizon:
Hue—7.5YR, 10YR, 2.5Y, or neutral
Value—2 to 6
Chroma—0 to 2
Texture—typically silt loam, but some pedons contain subhorizons of loam, sandy loam, or silty clay loam

In some pedons there is a buried silt loam A horizon below a depth of 30 inches.

Cg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—2 to 6
Chroma—0 to 2
Texture—silt loam or loam, and some pedons contain strata that include sandy loam or silty clay loam

3076A—Otter silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Poorly drained
Dominant parent material: Alluvium
Flooding frequency: Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Otter and similar soils: 100 percent

Similar soils:
* Soils that contain more clay in the subsoil
* Soils that have a thinner dark surface layer
* Areas of somewhat poorly drained soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Petrolia Series

Taxonomic Class: Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents

Typical Pedon for MLRA 114

Petrolia silty clay loam, nearly level, in a cultivated field, at an elevation of about 412 feet above mean sea level; about 3 miles south of Bartelso in Clinton County, Illinois (map sheet Addieville NW, IL.); approximately 800 feet west and 400 feet south of the center of sec. 29, T. 1 N., R. 3 W.;USGS Addieville, IL. topographic quadrangle; lat. 38 degrees 29 minutes 56 seconds N. and long. 89 degrees 27 minutes 28 seconds W.

Ap—0 to 8 inches; dark grayish brown (2.5Y 4/2) silty clay loam, light brownish gray (2.5Y 6/2) dry; moderate fine granular structure; friable; common very fine roots; few fine rounded black (N 2.5/0) and strong brown (7.5YR 4/6) masses of iron-manganese accumulation throughout; about 34 percent clay; neutral; abrupt smooth boundary.

Bg1—8 to 15 inches; dark gray (2.5Y 4/1) silty clay loam; weak medium subangular blocky structure; friable; few very fine roots; few faint dark gray (2.5Y 4/1) pressure faces on faces of peds; common fine prominent dark yellowish brown (10YR 4/4) and common fine faint (2.5Y 4/2) masses of iron accumulation in the matrix; few fine rounded black (N 2.5/0) and strong brown (7.5YR 4/6) masses of iron-manganese accumulation throughout; about 32 percent clay; slightly acid; clear smooth boundary.

Bg2—15 to 26 inches; gray (2.5Y 5/1) silty clay loam; weak fine prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; common distinct dark gray (2.5Y 4/1) pressure faces on faces of peds; common fine and medium prominent dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine and medium rounded black (N 2.5/0) iron-manganese nodules with sharp strong brown (7.5YR 4/6) boundaries and few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation throughout; about 33 percent clay; slightly acid; clear smooth boundary.

Bg3—26 to 42 inches; gray (2.5Y 5/1) silty clay loam; weak medium prismatic structure parting to weak medium and coarse subangular blocky; firm; few very fine roots; few distinct dark gray (2.5Y 4/1) pressure faces on faces of peds; common fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium rounded black (N 2.5/0) iron-manganese nodules with sharp strong brown (7.5YR 4/6) boundaries and common fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation throughout; about 34 percent clay; slightly acid; gradual smooth boundary.

BCg—42 to 55 inches; gray (2.5Y 5/1) silty clay loam; weak medium prismatic structure; firm; few very fine roots; few distinct dark gray (2.5Y 4/1) clay films lining root channels and pores; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries and common fine and medium irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation throughout; about 35 percent clay; slightly acid; gradual smooth boundary.

Cg1—55 to 73 inches; gray (2.5Y 6/1) silty clay loam; massive; firm; few very fine roots in old channels; few distinct dark gray (2.5Y 4/1) clay films lining root channels and pores; many fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries and common fine and medium irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation throughout; about 33 percent clay; neutral; diffuse smooth boundary.

Cg2—73 to 90 inches; gray (2.5Y 6/1) silty clay loam; massive; firm; common medium and coarse prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries and few fine and medium irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation throughout; dark gray (2.5Y 4/1) krotovina; about 36 percent clay; neutral.

MLRA Series Range in Characteristics

Depth to carbonates: More than 60 inches
Particle-size control section: Averages 27 to 35 percent clay and less than 15 percent fine sand or coarser
Reaction: Typically slightly acid or neutral, but individual strata or subhorizons are very strongly acid to slightly alkaline

Ap or A horizon:
Hue—10YR or 2.5Y
Value—4 to 6, and some pedons have a thin surface horizon with value of 3
Chroma—1 or 2
Texture—silty clay loam, or less commonly silt loam

Bg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam

Cg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—dominantly silty clay loam, but some pedons are silt loam and other pedons contain strata of silty clay, silt loam, loam, or fine sandy loam

1288A—Petrolia silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood Plain
Position on Landform: Backswamp

Soil Properties and Qualities

Drainage: Very poorly drained
Dominant parent material: Alluvium
Flooding frequency: Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Petrolia, undrained and similar soils: 100 percent

Similar soils:
* Soils with a dark surface layer
* Soils that contain more clay throughout

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

3288L—Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Poorly drained
Dominant parent material: Alluvium
Flooding frequency: Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Petrolia and similar soils: 100 percent

Similar soils:
* Soils that contain less clay throughout
* Soils that have a dark surface layer
* Areas of somewhat poorly drained soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Piasa Series

Taxonomic Class: Fine, smectitic, mesic Vertic Natraqualfs

Typical Pedon for MLRA 114

Piasa silt loam, nearly level, in a cultivated field, at an elevation of about 630 feet above mean sea level; about 3 miles north of Hillsboro in Montgomery County, Illinois; approximately 277 feet west and 85 feet south of the northeast corner of sec. 26, T. 9 N., R. 4 W.; USGS Hillsboro, IL. topographic quadrangle; lat. 39 degrees 12 minutes 8 seconds N. and long. 89 degrees 29 minutes 37 seconds W.

Ap—0 to 8 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; weak fine granular structure; friable; common very fine roots; few fine continuous tubular pores; few fine and medium rounded black (5YR 2.5/1) iron manganese nodules with sharp boundaries; neutral; abrupt smooth boundary.

Eg—8 to 12 inches; dark gray (10YR 4/1) silt loam, gray (10YR 6/1) dry; moderate thin and medium platy structure; friable; few very fine roots; few fine pores filled with black (10YR 2/1) soil material; light gray (10YR 7/1, dry) clay depletions on faces of peds; common fine and medium rounded black (5YR 2.5/1) iron manganese nodules with sharp boundaries; slightly alkaline; abrupt wavy boundary.

Btng—12 to 16 inches; dark grayish brown (2.5Y 4/2) silty clay loam; weak very coarse columnar structure parting to moderate fine angular blocky; firm; few very fine roots; few fine tubular pores; common distinct gray (10YR 6/1, dry) clay depletions on the slightly rounded caps of the columns and on the faces of the columns; common prominent black (10YR 2/1) organic coatings lining root channels and filling pores; many distinct dark gray (10YR 4/1) clay films on faces of peds; common fine prominent dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; slightly alkaline; clear smooth boundary.

Btkng1—16 to 20 inches; dark grayish brown (2.5Y 4/2) silty clay; weak very coarse prismatic structure parting to moderate medium and coarse angular blocky; firm, sticky; few very fine roots; few fine tubular pores; few prominent black (10YR 2/1) organic coatings lining root channels and filling pores; common distinct dark gray (10YR 4/1) clay films on faces of peds; few fine faint very dark grayish brown (2.5Y 3/2) and few fine prominent dark yellowish brown (10YR 4/4) masses of iron

accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; few fine and medium irregular black (10YR 2/1) iron-manganese nodules with sharp boundaries; few medium rounded white (10YR 8/1) carbonate concretions; slightly effervescent; slightly alkaline; clear smooth boundary.

Btkng2—20 to 26 inches; dark grayish brown (2.5Y 4/2) silty clay; weak very coarse prismatic structure parting to moderate medium and coarse angular blocky; firm, sticky; few very fine roots; few fine tubular pores; few prominent black (10YR 2/1) organic coatings lining root channels and filling pores; common distinct dark gray (10YR 4/1) clay films on faces of peds; common fine distinct olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 5/6) masses of iron-manganese accumulation; few fine and medium irregular black (10YR 2/1) iron-manganese nodules with sharp boundaries; common medium and coarse rounded white (10YR 8/1) carbonate concretions; slightly effervescent; moderately alkaline; clear smooth boundary.

Btkng3—26 to 33 inches; dark grayish brown (2.5Y 4/2) silty clay loam; weak very coarse prismatic structure parting to weak and moderate medium angular blocky; firm, slightly sticky; few very fine roots; common distinct dark gray (10YR 4/1) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) and few fine prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; common medium and coarse rounded white (10YR 8/1) carbonate concretions; slightly effervescent; moderately alkaline; clear smooth boundary.

Btkng4—33 to 37 inches; dark grayish brown (2.5Y 4/2) silty clay loam; weak very coarse prismatic structure parting to weak coarse angular blocky; friable; few very fine roots; few distinct dark gray (10YR 4/1) clay films on faces of peds; many medium and coarse prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few fine and medium irregular black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; few medium rounded white (10YR 8/1) carbonate concretions; slightly effervescent; slightly alkaline; clear smooth boundary.

BCg—37 to 48 inches; grayish brown (2.5Y 5/2) silt loam; weak coarse angular blocky structure; friable; few very fine roots; few faint gray (10YR 5/1) clay films on vertical faces of peds; many coarse prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation and few fine irregular black (10YR 2/1) iron-manganese nodules with sharp boundaries; slightly alkaline; clear smooth boundary.

2Btgb1—48 to 62 inches; gray (10YR 5/1) silt loam; moderate fine and medium prismatic structure parting to weak medium angular blocky; friable; few fine vesicular pores; few prominent very dark gray (10YR 3/1) organic coatings lining root channels and filling pores and many distinct dark gray (10YR 4/1) clay films on faces of peds; many coarse prominent yellowish brown (10YR 5/8) and reddish brown (5YR 4/4) masses of iron accumulation in the matrix; few medium and coarse irregular black (10YR 2/1) iron-manganese nodules with diffuse strong brown (7.5YR 5/6) boundaries; about 10 to 15 percent sand and 1 percent pebbles; slightly alkaline; gradual smooth boundary.

2Btgb2—62 to 80 inches; grayish brown (10YR 5/2) clay loam; moderate medium prismatic structure parting to weak medium angular blocky; firm; few fine vesicular pores; few prominent very dark gray (10YR 3/1) organic coatings lining root channels and filling pores and common distinct dark gray (10YR 4/1) clay films on faces of peds; many medium and coarse prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few fine and medium irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 5 percent pebbles; neutral.

MLRA Series Range in Characteristics

Depth to the base of the natric horizon: 30 to 50 inches
Thickness of loess: 40 to 72 inches
Exchangeable sodium: Ranges from 15 percent to more than 35 percent in the natric horizon
Depth to carbonates: Variable, and are not everywhere present

Ap horizon:
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 or 2
Texture—silt loam

Eg horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—1 or 2
Texture—silt loam

Btng horizon, and Btkng horizon, where present:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—silty clay loam or silty clay

BCg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—silty clay loam or silt loam

Cg and 2Cg horizons, where present, and 2Ab and/or 2Btgb horizons, where present:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—3 to 6
Chroma—0 to 2
Texture—silt loam, loam, silty clay loam, or clay loam

Pierron Series

Taxonomic Class: Fine, smectitic, mesic Chromic Vertic Albaqualfs

Typical Pedon for MLRA 114

Pierron silt loam, nearly level, in a cultivated field, at an elevation of about 540 feet above mean sea level; about 2 miles northeast of Marine in Madison County, Illinois; approximately 1,730 feet east and 80 feet south of the northwest corner of sec. 14, T. 4 N., R. 6 W.; USGS Grantfork, IL. topographic quadrangle; lat. 38 degrees 48 minutes 2 seconds N. and long. 89 degrees 44 minutes 19 seconds W.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; very friable; many very fine and common fine roots; few fine continuous tubular pores; many distinct light brownish gray (10YR 6/2, dry) clay depletions on faces of peds; few fine rounded black (5YR 2.5/1) iron-manganese nodules with sharp boundaries; slightly acid; abrupt smooth boundary.

Eg1—8 to 12 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; weak thin platy structure; very friable; few very fine roots; common very fine and fine continuous tubular pores; common distinct light gray (10YR 7/1, dry) clay depletions on faces of peds; few medium distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; many fine and medium rounded reddish brown (5YR 4/4) and dark reddish brown (5YR 2.5/2) iron-manganese nodules with clear boundaries; moderately acid; clear smooth boundary.

Eg2—12 to 20 inches; light brownish gray (10YR 6/2) silt loam, light gray (10YR 7/1) dry; moderate thick platy structure parting to weak fine subangular blocky; very friable; few very fine roots; common very fine continuous tubular pores; many distinct white (10YR 8/1, dry) clay depletions on faces of peds; few distinct very dark grayish brown (10YR 3/2) organic coatings lining root channels; common medium prominent light olive brown (2.5Y 5/4) and few fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; common medium rounded black (5YR 2.5/1) iron-manganese nodules with clear reddish brown (5YR 4/4) boundaries; strongly acid; abrupt smooth boundary.

Btg1—20 to 29 inches; light brownish gray (2.5Y 6/2) silty clay; moderate medium prismatic structure parting to strong fine and medium angular blocky; very firm; few very fine roots; few prominent very dark grayish brown (10YR 3/2) organic coatings lining root channels; many prominent grayish brown (2.5Y 5/2) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/4) and few fine distinct light olive brown (2.5Y 5/4) masses of iron accumulation in the matrix; common medium rounded dark reddish brown (5YR 2.5/2) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; very strongly acid; clear smooth boundary.

Btg2—29 to 36 inches; light brownish gray (2.5Y 6/2) silty clay; strong medium prismatic structure parting to moderate medium angular blocky; very firm; common prominent very dark grayish brown (10YR 3/2) organic coatings lining root channels; many prominent grayish brown (2.5Y 5/2) clay films on faces of peds; common coarse prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium rounded dark reddish brown (5YR 2.5/2) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; very strongly acid; clear smooth boundary.

Btg3—36 to 44 inches; light brownish gray (2.5Y 6/2) silty clay loam; moderate coarse prismatic structure parting to moderate medium angular blocky; very firm; common prominent very dark grayish brown (10YR 3/2) organic coatings lining root channels; many distinct grayish brown (2.5Y 5/2) clay films on faces of peds; many coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common medium rounded black (5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; strongly acid; clear smooth boundary.

Btg4—44 to 55 inches; light olive gray (5Y 6/2) silty clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm;

common distinct dark gray (10YR 4/1) organic coatings lining root channels; common distinct grayish brown (2.5Y 5/2) clay films on faces of peds; common coarse prominent strong brown (7.5YR 5/6) and common medium prominent light olive brown (2.5Y 5/6) masses of iron accumulation in the matrix; common medium rounded black (5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; moderately acid; gradual smooth boundary.

Btg5—55 to 66 inches; light olive gray (5Y 6/2) silty clay loam; weak coarse prismatic structure; friable; common distinct grayish brown (2.5Y 5/2) clay films on faces of peds; common medium prominent brownish yellow (10YR 6/8) and yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few fine irregular black (5YR 2.5/1) iron-manganese nodules with clear boundaries and common fine and medium irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; slightly acid; clear smooth boundary.

2Cg—66 to 80 inches; grayish brown (2.5Y 5/2) silt loam; massive; friable; common fine and medium prominent brownish yellow (10YR 6/6) masses of iron accumulation in the matrix; few fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 4/6) boundaries; about 10 percent sand; neutral.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: 50 to 80 inches or more
Thickness of loess: Typically 55 to about 80 inches

Ap horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—1 or 2
Texture—silt loam

Eg horizon:
Hue—10YR or 2.5Y
Value—5 or 6 (6 to 8 dry)
Chroma—1 or 2
Texture—silt loam or silt

Btg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—silty clay loam or silty clay

Cg or 2Cg horizon:
Hue—7.5YR, 10YR, 2.5Y, 5Y, or neutral
Value—4 to 7
Chroma—0 to 2
Texture—silt loam, loam, silty clay loam, or clay loam

31A—Pierron silt loam, 0 to 2 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Pierron and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that do not have an abrupt textural change
* Soils that contain less clay in the subsoil
* Soils that have a dark surface layer
Dissimilar soils:
* Darmstsdt soils that have a natric horizon
* Small areas of depressional soils that remain wet for periods that extend into the growing season

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

864—Pits, quarries

Composition

Pits, quarries: 90 percent *(fig. 4).*
Dissimilar soils: 10 percent

Pits, quarries: Areas of open excavations from which limestone has been removed*
Dissimilar soils:
* Areas of water
* Small areas of orthents, silty or orthents, loamy

* Small areas of undisturbed soils

865—Pits, gravel

Composition

Pits, gravel: 90 percent
Dissimilar soils: 10 percent

Pits, gravel:
* Areas from which sand and gravel have been removed
Dissimilar soils:
* Areas of water
* Small areas of orthents, silty or orthents, loamy
* Small areas of undisturbed soils

Racoon Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Typic Endoaqualfs

Typical Pedon for MLRA 114

Racoon silt loam, nearly level, in a cultivated field, at an elevation of about 425 feet above mean sea level; about 1 mile east of West End in Saline County, Illinois; approximately 135 feet north and 2,095 feet east of the center of sec. 30, T. 7 S., R. 5 E.; USGS Akin, IL. topographic quadrangle; lat. 37 degrees 53 minutes 8 seconds N. and long. 88 degrees 41 minutes 23 seconds W.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure; friable; common fine very dark grayish brown (10YR 3/2) masses of iron-manganese accumulation throughout; neutral; abrupt smooth boundary.

Eg1—6 to 10 inches; dark grayish brown (10YR 4/2) silt loam; weak thin platy structure; firm; common fine very dark grayish brown (10YR 3/2) masses of iron-manganese accumulation throughout; neutral; abrupt smooth boundary.

Eg2—10 to 14 inches; dark grayish brown (10YR 4/2) silt loam; weak medium platy structure parting to weak fine granular; friable; common fine faint grayish brown (10YR 5/2) and few fine distinct light gray (10YR 7/1) iron depletions in the matrix; common fine very dark grayish brown (10YR 3/2) masses of iron-manganese accumulation throughout; strongly acid; clear smooth boundary.

Eg3—14 to 30 inches; gray (10YR 6/1) silt loam; weak medium platy structure parting to weak fine granular; friable; common very fine constricted tubular pores; common medium prominent yellowish brown (10YR 5/6) and brownish yellow (10YR 6/6) masses of iron accumulation in the matrix; many fine black (10YR 2/1) masses of iron-manganese accumulation throughout; few grayish brown (10YR 5/2) krotovinas; very strongly acid; clear smooth boundary.

Btg1—30 to 37 inches; gray (10YR 6/1) silty clay loam; weak medium prismatic structure parting to weak fine subangular blocky; firm; few very fine tubular pores; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine prominent yellowish brown (10YR 5/6) and brownish yellow (10YR 6/6) masses of iron accumulation in the matrix; common fine black (10YR 2/1) iron-manganese concretions; very strongly acid; clear smooth boundary.

Btg2—37 to 47 inches; gray (10YR 6/1) silty clay loam; moderate medium prismatic structure parting to weak medium subangular blocky; firm; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few fine faint light gray (10YR 7/1) iron depletions and many fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine black (10YR 2/1) iron-manganese concretions; very strongly acid; clear smooth boundary.

Btg3—47 to 59 inches; gray (10YR 6/1) silty clay loam; weak medium prismatic structure parting to weak medium subangular blocky; firm; few faint gray (10YR 5/1) and common prominent dark olive gray (5Y 3/2) clay films on faces of peds; common medium prominent strong brown (7.5YR 5/6) and dark brown (7.5YR 4/4) masses of iron accumulation in the matrix; few fine black (10YR 2/1) iron-manganese concretions; strongly acid; clear smooth boundary.

Cg—59 to 73 inches; gray (5Y 6/1) and (10YR 6/1) silt loam; massive; friable; many coarse distinct grayish brown (10YR 5/2) and prominent brown (7.5YR 4/4) masses of iron accumulation in the matrix; slightly acid increasing to neutral in the lower part.

MLRA Series Range in Characteristics

Depth to the top of the argillic horizon: 24 to 36 inches
Depth to the base of the argillic horizon: 40 to 75 inches
Particle-size control section: These soils average 27 to 35 percent clay in the particle-size control section. The upper and middle parts of the series control section average less than 10 percent sand and less than 2 percent by volume gravel. The lower part of the series control section averages 10 to 35 percent sand and averages 18 to 30 percent

clay. Individual horizons or strata have as much as 80 percent sand or as much as 42 percent clay.

Ap or A horizon:
Hue—10YR
Value—3 to 6 (5 to 7 dry)
Chroma—2 or 3
Texture—silt loam

Eg horizon:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Texture—silt loam

Btg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 7
Chroma—0 to 2
Texture—dominantly silty clay loam, but is silt loam in upper or lower subhorizons in some pedons

Cg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 7
Chroma—1 or 2
Texture—dominantly silt loam or loam, but in some pedons it is stratified with strata of loamy fine sand to silty clay

109A—Racoon silt loam, 0 to 2 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Poorly drained
Dominant parent material: Slope alluvium
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Racoon and similar soils: 100 percent

Similar soils:
* Soils with thinner surface and subsurface layers
* Soils that contain more clay in the subsoil
* Soils that contain more sand in the substratum

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

8109A—Racoon silt loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform: Lake Plain
Position on Landform: Broad Flat

Soil Properties and Qualities

Drainage: Poorly drained
Dominant parent material: Alluvium
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Racoon and similar soils: 100 percent

Similar soils:
* Soils that contain more clay in the subsoil
* Soils that contain more sand throughout

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Figure 4.—Limestone quarry, a miscellaneous land type, Pits, quarries.

Redbud Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

Typical Pedon for MLRA 114

Redbud silt loam, gently sloping, on a lake terrace tread, in a cultivated field, at an elevation of about 420 feet above mean sea level; about 6 miles south of New Athens in St. Clair County, Illinois (map sheet Redbud NE, IL.); approximately 1,280 feet north and 2,040 feet east of the southwest corner of sec. 28, T. 3 S., R. 7 W.; USGS Red Bud, IL. topographic quadrangle; lat. 38 degrees 14 minutes 10 seconds N. and long. 89 degrees 53 minutes 5 seconds W.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; common very fine and fine roots throughout; neutral; abrupt smooth boundary.

E—9 to 16 inches; dark yellowish brown (10YR 4/4) silt loam, pale brown (10YR 6/3) dry; moderate medium platy structure; friable; common very fine roots throughout; few distinct dark brown (10YR 3/3) organic coatings lining root channels; few fine irregular black (N 2.5/0) masses of iron-manganese accumulation; slightly acid; abrupt smooth boundary.

Bt1—16 to 22 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots between peds; common distinct brown (7.5YR 4/2) clay films on faces of peds; few fine and medium irregular black (N 2.5/0) masses of iron-manganese accumulation; moderately acid; clear smooth boundary.

Bt2—22 to 28 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium prismatic structure parting to strong medium subangular blocky; firm; few very fine roots between peds; few prominent black (10YR 2/1) iron-manganese stains on faces of peds; common distinct brown (7.5YR 4/2) clay films on faces of peds; common fine and medium irregular black (7.5YR 2.5/1) masses of iron-

manganese accumulation; moderately acid; clear smooth boundary.

Bt3—28 to 36 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots between peds; few prominent black (10YR 2/1) iron-manganese stains on faces of peds; common distinct brown (7.5YR 4/2) clay films on faces of peds; many medium prominent grayish brown (10YR 5/2) iron depletions and common medium distinct yellowish red (5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; moderately acid; clear smooth boundary.

Bt4—36 to 45 inches; strong brown (7.5YR 4/4) silty clay loam; moderate medium prismatic structure; friable; few very fine roots between peds; few distinct brown (7.5YR 4/2) clay films on faces of peds; common medium prominent grayish brown (10YR 5/2) iron depletions and common medium prominent yellowish red (5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; moderately acid; abrupt smooth boundary.

2Bt5—45 to 60 inches; dark yellowish brown (10YR 4/4) silty clay; moderate medium prismatic structure; very firm; few very fine roots between peds; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many medium distinct grayish brown (10YR 5/2) iron depletions and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; slightly acid; clear smooth boundary.

2Bt6—60 to 72 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium prismatic structure; firm; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many medium distinct grayish brown (10YR 5/2) iron depletions and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; slightly acid; clear smooth boundary.

2BCt—72 to 80 brown (10YR 4/3) silt loam; weak medium prismatic structure; friable; few distinct dark gray (10YR 4/1) clay films in root channels and pores; common coarse faint grayish brown (10YR 5/2) iron depletions in the matrix; few fine irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; neutral.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: 54 to 80 inches or more
Depth to carbonates: More than 48 inches, where present
Thickness of loess: Typically 36 to about 70 inches

Ap horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 or 3
Texture—silt loam

Some undisturbed pedons have a thin A horizon with a color value of 3 and a chroma of 1 or 2.

E horizon:
Hue—10YR
Value—4 to 6 (6 to 8 dry)
Chroma—3 to 6
Texture—silt loam or silty clay loam

Some pedons have a BE or an EB horizon

Bt horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—silty clay loam or silt loam

2Bt horizon, and 2BC or 2C horizon, where present:
Hue—7.5YR, 10YR, 2.5Y, or 5Y
Value—4 to 7
Chroma—2 to 4
Texture—clay, silty clay, silty clay loam, or silt loam; and is stratified in some pedons

437B—Redbud silt loam, 2 to 5 percent slopes

Setting

Landform: Lake Terrace
Position on Landform: Tread

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Loess overlying lacustrine deposits
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Redbud and similar soils: 100 percent

Similar soils:
* Soils that contain more clay in the subsoil
* Small areas that are moderately eroded
* Areas of somewhat poorly drained soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* “Agronomy” section
* “Wildlife Habitat” section
* “Engineering” section
* “Soil Properties” section

437C2—Redbud silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Lacustrine Terrace
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Loess overlying lacustrine deposits
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

Composition

Redbud and similar soils: 100 percent

Similar soils:
* Soils that contain more clay in the subsoil
* Areas that are severely eroded
* Areas of somewhat poorly drained and/or well drained soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* “Agronomy” section
* “Wildlife Habitat” section
* “Engineering” section
* “Soil Properties” section

906C3—Redbud-Hurst silty clay loams, 5 to 10 percent slopes, severely eroded

Setting

Landform:
* Redbud—Lake Terrace
* Hurst—Lake Terrace

Position on Landform:
* Redbud—Side slope
* Hurst—Side slope

Soil Properties and Qualities

Drainage:
* Redbud—Moderately well drained
* Hurst—Somewhat poorly drained

Dominant parent material:
* Redbud—Loess overlying lacustrine deposits
* Hurst—Lacustrine deposits

Flooding frequency:
* Redbud—None
* Hurst—None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

Composition

Redbud and similar soils: 50 percent
Hurst and similar soils: 40 percent
Dissimilar soils: 10 percent

Similar soils:
* Areas of less sloping soils
* Areas of moderately eroded soils

Dissimilar soils:
* Petrolia soils in drainageways
* Okaw soils on the lower part of side slopes

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* “Agronomy” section
* “Forestland Management and Productivity” section
* “Wildlife Habitat” section
* “Engineering” section
* “Soil Properties” section

907D3—Redbud-Colp silty clay loams, 10 to 18 percent slopes, severely eroded

Setting

Landform:
* Redbud—Lake Terrace
* Colp—Lake Terrace
Position on Landform:
* Redbud—Side slope
* Colp—Side slope

Soil Properties and Qualities

Drainage:
* Redbud—Moderately well drained
* Colp—Moderately well drained
Dominant parent material:
* Redbud—Loess overlying lacustrine deposits
* Colp—Lacustrine deposits
Flooding frequency:
* Redbud—None
* Colp—None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Redbud and similar soils: 50 percent
Colp and similar soils: 40 percent
Dissimilar soils: 10 percent

Similar soils:
* Areas of well drained soils
* Areas of moderately eroded soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Ridgway Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon for MLRA 114

Ridgway silt loam, gently sloping, in a cultivated field, at an elevation of about 415 feet above mean sea level; about 3 miles southwest of Bartelso in Clinton County, Illinois; approximately 1,267 feet east and 1,874 feet north of the southwest corner of sec. 36, T. 1 N., R. 4 W.; USGS Addieville, IL. topographic quadrangle; lat. 38 degrees 29 minutes 2 seconds N. and long. 89 degrees 29 minutes 33 seconds W.

Ap—0 to 8 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; many very fine and few fine roots; fragments of dark yellowish brown (10YR 4/4) subsoil mixed in the lower part; neutral; abrupt smooth boundary.

Bt1—8 to 16 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate very fine subangular blocky structure; firm; common very fine roots; few fine continuous tubular pores; many faint brown (10YR 4/3) clay films on faces of peds; neutral; clear smooth boundary.

Bt2—16 to 27 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine roots; common fine continuous tubular pores; many distinct brown (10YR 4/3) clay films on faces of peds; moderately acid; gradual smooth boundary.

2Bt3—27 to 32 inches; brown (7.5YR 4/4) clay loam; moderate medium subangular blocky structure; firm; common very fine roots; few fine continuous tubular pores; common distinct brown (10YR 4/3) clay films on faces of peds; strongly acid; clear smooth boundary.

2Bt4—32 to 52 inches; brown (7.5YR 4/4) fine sandy loam; weak medium and coarse subangular blocky structure; friable; common very fine roots; few fine and medium vesicular and tubular pores; few distinct brown (10YR 4/3) clay films on faces of peds; strongly acid; gradual smooth boundary.

2E&Bt—52 to 74 inches; yellowish brown (10YR 5/6) fine sand (E part); single grain; loose; brown (7.5YR 4/4) loamy fine sand lamellae (Bt part); massive; very friable; many faint brown (7.5YR 4/3) clay films as bridges between sand grains; lamella are individually 1 to 2 inches thick and combined thickness of lamella is about 10 inches; few very fine roots; moderately acid; clear smooth boundary.

2C—74 to 98 inches; yellowish brown (10YR 5/4) fine sand; single grain; loose; few very fine roots; slightly acid.

MLRA Series Range in Characteristics

Thickness of the series control section: 60 to 80 inches

Thickness of loess or other silty material: 24 to 40 inches
Content of rock fragments: Less than 10 percent by volume in the 2Bt and 2E&Bt horizons

Ap or A horizon:
Hue—10YR
Value—4 or 5, (6 or 7 dry) and 3 (5 dry) for horizons less than 6 inches in thickness
Chroma—2 or 3
Texture—silt loam

Some pedons have an E horizon.

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—silty clay loam or silt loam

2Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—clay loam, loam, or sandy loam, and in some pedons it is stratified and some strata have coarser or finer textures

2E&Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—The E part is loamy sand, sand, or the fine or very fine analogs. The Bt part is loamy sand, sandy loam, or the fine or very fine analogs.

8434B—Ridgway silt loam, 2 to 5 percent slopes, occasionally flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Alluvium
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Ridgway and similar soils: 100 percent

Similar soils:

* Soils that contain more sand in the upper part
* Areas of moderately well drained soils
* Areas that are more or less sloping

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Rocher Series

Taxonomic Class: Coarse-loamy, mixed, superactive, calcareous, mesic Typic Udifluvents

Typical Pedon for MLRA 115B

Rocher loam, near the crest of a broad, low natural levee, with a 2 percent slope, in a cultivated field, at an elevation of about 382 feet above mean sea level; about 7 miles southeast of Prairie du Rocher in Randolph County, Illinois; approximately 1,980 feet southwest with a line perpendicular to levee and 1,320 feet northeast of Mississippi River, also approximately 5,400 feet southeast along the levee from the intersection of the levee and the Discharge (drainage ditch), and 800 feet southwest perpendicular to the levee, T. 6 S., R. 8 W.; state plain coordinates 484,480 feet north and 540,490 feet east, Illinois West Zone; T. 6 S., R. 8 W.; USGS Ste. Genevieve, MO.-IL. topographic quadrangle; lat. 37 degrees 59 minutes 47 seconds N. and long. 90 degrees 1 minute 32 seconds W.

Ap—0 to 5 inches; brown (10YR 4/3) loam, pale brown (10YR 6/3) dry; weak medium and coarse granular structure; very friable; common fine roots; slightly effervescent; slightly alkaline; clear smooth boundary.

C1—5 to 11 inches; brown (10YR 5/3) very fine sandy loam; massive; very friable; common fine roots; slightly effervescent; slightly alkaline; clear smooth boundary.

C2—11 to 32 inches; light yellowish brown (10YR 6/4) loamy very fine sand; single grain; loose; few fine roots; slightly effervescent; slightly alkaline; gradual smooth boundary.

C3—32 to 53 inches; yellowish brown (10YR 5/4) loamy very fine sand; single grain; loose; slightly effervescent; slightly alkaline; gradual smooth boundary.

C4—53 to 62 inches; light yellowish brown (10YR 6/4) loamy fine sand; single grain; loose; slightly effervescent; slightly alkaline.

MLRA Series Range in Characteristics

Thickness of the solum: 6 to 20 inches, and corresponds to the thickness of the A horizon or the A and AC horizons
Depth to carbonates: Carbonates are at a depth of 10 inches or less. Some pedons do not have carbonates in some strata at depths between 20 and 60 inches.

Ap or A horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 or 3
Texture—very fine sandy loam, fine sandy loam, loamy fine sand, loamy very fine sand, very fine sand, loam, or silt loam

Some pedons have an AC horizon. It is within the same ranges defined for the Ap or A horizon.

C horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—very fine sand, very fine sandy loam, or loamy very fine sand, and contains strata of loamy fine sand, fine sand, fine sandy loam, silt loam, or loam

3038B—Rocher loam, 2 to 5 percent slopes, frequently flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Somewhat excessively drained
Dominant parent material: Alluvium
Flooding frequency: Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Rocher and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that contain more clay in the surface layer
* Soils that do not have carbonates in the surface layer

Dissimilar soils:
* Small areas of somewhat poorly drained Blake soils in depressional landform positions

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Ruma Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon for MLRA 114

Ruma silty clay loam, in an area of Ruma-Ursa silty clay loams, 18 to 35 percent slopes, severely eroded; in a hay field on a south-facing shoulder slope with a gradient of 12 percent at an elevation of about 485 feet above mean sea level; about 2 miles east of Floraville in St. Clair County, Illinois (map sheet Millstadt SE, IL.); approximately 1,515 feet south and 1,030 feet west of the northeast corner of sec. 7, T. 2 S., R. 8 W.; USGS Millstadt, IL. topographic quadrangle; lat. 38 degrees 22 minutes 6 seconds N. and long. 90 degrees 1 minute 18 seconds W.

Ap—0 to 5 inches; mixed dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/4) silty clay loam, light yellowish brown (10YR 6/4) dry; moderate fine subangular blocky structure; friable; many very fine and common fine and medium roots; few very fine and fine constricted tubular pores; about 29 percent clay; slightly acid; abrupt smooth boundary.

Bt1—5 to 13 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; common very fine and few fine and medium roots; many distinct dark brown (10YR 3/3) clay films on faces of peds; about 33 percent clay; strongly acid; clear smooth boundary.

Bt2—13 to 28 inches; dark yellowish brown (10YR 4/6) silty clay loam; moderate fine prismatic structure parting to moderate medium angular blocky; firm; common very fine and few fine roots; many distinct dark yellowish brown (10YR 3/4) clay films

on faces of peds; about 32 percent clay; strongly acid; gradual smooth boundary.

Bt3—28 to 40 inches; dark yellowish brown (10YR 4/6) silty clay loam; moderate medium prismatic structure parting to moderate medium and coarse angular blocky; firm; few very fine roots; few very fine constricted tubular pores; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few prominent black (10YR 2/1) iron-manganese coatings on vertical faces of peds and lining root channels; about 28 percent clay; moderately acid; gradual smooth boundary.

Bt4—40 to 48 inches; yellowish brown (10YR 5/6) silt loam; weak medium prismatic structure; friable; few very fine roots; few very fine and fine constricted tubular pores; few distinct dark yellowish brown (10YR 4/4) clay films on vertical faces of peds; few fine rounded very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 23 percent clay; slightly acid; clear smooth boundary.

2BCt1—48 to 62 inches; brown (7.5YR 4/4) silt loam; massive; friable; few very fine roots; common very fine and fine tubular pores; very few distinct dark yellowish brown (10YR 4/4) clay films lining root channels; few fine rounded very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 25 percent clay and 8 percent sand; slightly acid; gradual smooth boundary.

2BCt2—62 to 95 inches; brown (7.5YR 4/4) silt loam; massive; friable; few very fine roots; few fine and medium tubular pores; very few distinct dark yellowish brown (10YR 4/4) clay films lining root channels; few fine distinct pinkish gray (7.5YR 6/2) iron depletions along root channels; few fine rounded black (7.5YR 2.5/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 24 percent clay and 12 percent sand; neutral.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: 40 to 70 inches
Thickness of loess: 40 inches to about 80 inches

Ap horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 to 4
Texture—silt loam or silty clay loam

In undisturbed areas the A horizon has color value of 3 (5 or 6 dry) and chroma of 1 or 2

E, EB, or BE horizons, where present:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—silt loam

Bt and BC horizons:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—silty clay loam or silt loam

2Bt, 2BC, or 2CB horizons:
Hue—7.5YR, 10YR, or 2.5Y
Value—5 or 6
Chroma—2 to 6
Texture—silt loam

491B2—Ruma silty clay loam, 2 to 5 percent slopes, eroded

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Ruma and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Areas of soils that are less eroded
* Soils that contain more clay in the subsoil

Dissimilar soils:
* Areas of somewhat poorly drained Marine soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

491C3—Ruma silty clay loam, 5 to 10 percent slopes, severely eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Ruma and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Areas of moderately well drained soils
* Areas of moderately eroded soils
Dissimilar soils:
* Wakeland soils in small upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

491D3—Ruma silty clay loam, 10 to 18 percent slopes, severely eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Ruma and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Areas of moderately well drained soils
* Areas of moderately eroded soils
Dissimilar soils:
* Wakeland soils in upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

886F3—Ruma-Ursa silty clay loams, 18 to 35 percent slopes, severely eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material:
* Ruma—Loess
* Ursa—Till, basal
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Ruma and similar soils: 50 percent
Ursa and similar soils: 40 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that have a thinner loess mantle
Dissimilar soils:
* Areas of soils that are not eroded

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Shaffton Series

Taxonomic Class: Fine-loamy, mixed, superactive, mesic Fluvaquentic Hapludolls

Typical Pedon for MLRA 115B

Shaffton clay loam, on a gently undulating flood plain, in a cultivated field, at an elevation of about 405 feet above mean sea level; about 2.5 miles west of Columbia in Monroe County, Illinois; approximately 280 feet east and 350 feet north of the southwest corner of sec. 18, T. 1 S., R. 10 W.; USGS Oakville, MO.-IL. topographic quadrangle; lat. 38 degrees 26 minutes 37 seconds N. and long. 90 degrees 15 minutes 20 seconds W.

Ap—0 to 10 inches; very dark gray (10YR 3/1) clay loam, gray (10YR 5/1) dry; moderate medium granular structure; friable; few very fine roots; neutral; abrupt smooth boundary.

Bw1—10 to 16 inches; brown (10YR 4/3) clay loam; moderate medium prismatic structure parting to moderate fine subangular blocky; friable; few very fine roots; many distinct very dark gray (10YR 3/1) organic coatings on faces of peds; few fine faint grayish brown (10YR 5/2) iron depletions and few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.

Bw2—16 to 21 inches; brown (10YR 4/3) clay loam; weak medium prismatic structure parting to moderate fine subangular blocky; friable; few very fine roots; common distinct very dark gray (10YR 3/1) organic coatings on faces of peds; few fine faint grayish brown (10YR 5/2) iron depletions and few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; moderately acid; clear smooth boundary.

Bw3—21 to 27 inches; brown (10YR 4/3) fine sandy loam; weak medium prismatic structure parting to weak medium angular blocky; very friable; few very fine roots; few faint very dark gray (10YR 3/1) organic coatings on faces of peds; few fine distinct gray (10YR 5/1) iron depletions and few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; moderately acid; clear smooth boundary.

Bw4—27 to 33 inches; brown (10YR 4/3) fine sandy loam; weak medium prismatic structure parting to weak medium angular blocky; very friable; few very fine roots; few faint very dark gray (10YR 3/1) organic coatings on faces of peds; common fine distinct gray (10YR 5/1) iron depletions and few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; moderately acid; clear smooth boundary.

BC—33 to 43 inches; brown (10YR 4/3) fine sandy loam; weak medium prismatic structure parting to weak medium angular blocky; very friable; few very fine roots; many medium distinct gray (10YR 5/1) iron depletions and common fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.

CB—43 to 53 inches; brown (10YR 5/3) silt loam; weak medium prismatic structure; very friable; few very fine roots; common medium distinct gray (10YR 5/1) iron depletions and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.

Cg—53 to 60 inches; 70 percent gray (10YR 5/1) and 30 percent strong brown (7.5YR 5/6) stratified fine sandy loam and silt loam; massive; very friable; few very fine roots; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; slightly acid.

MLRA Series Range in Characteristics

Depth to the base of soil development: Commonly about 36 inches, but ranges from 30 to 50 inches
Thickness of the mollic epipedon: 10 to 15 inches
Depth to carbonates: More than 60 inches, where present

Ap or A horizon:
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 to 3
Texture—silty clay loam, clay loam, silt loam, or loam

Bw horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 or 3
Texture—silty clay loam, clay loam, silt loam, loam, fine sandy loam or sandy loam

Cg or C horizon:
Hue—10YR or 2.5Y
Value—4 or 5

Chroma—1 to 3
Texture—commonly is stratified and ranges in texture from silty clay loam to coarse sand

8183A—Shaffton clay loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Alluvium
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Shaffton and similar soils: 100 percent

Similar soils:
* Soils that contain more clay in the surface horizon
* Soils that contain carbonates in the loamy alluvium
* Areas of poorly drained soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

2183A—Shaffton-Urban land complex, 0 to 2 percent slopes, occasionally flooded

Setting

Landform:
* Shaffton—Flood Plain
* Urban land—Flood Plain

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Alluvium
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Shaffton and similar soils: 50 percent
Urban land: 40 percent
Dissimilar soils: 10 percent

Similar soils:
* Areas of poorly drained soils
* Soils that have more clay throughout

Dissimilar soils:
* Well drained Landes soils on natural levees

Urban land:
* Areas covered by buildings, dwellings, roads, streets, parking lots, and lawns and gardens

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Swanwick Series

Taxonomic Class: Fine-silty, mixed, active, nonacid, mesic Alfic Udarents - The Swanwick soils in St. Clair County are taxadjuncts and classify as fine instead of fine-silty.

Typical Pedon for MLRA 114

Swanwick silty clay loam, on a gently sloping summit, in a cultivated field, at an elevation of about 410 feet above mean sea level; about 2 miles east of New Athens in St. Clair County, Illinois (map sheet New Athens East/NW, IL.); approximately 2,200 feet west and 360 feet south of the northeast corner of sec. 25, T. 2 S., R. 7 W.; USGS New Athens East, IL. topographic quadrangle; lat. 38 degrees 20 minutes 7 seconds N. and long. 89 degrees 49 minutes 30 seconds W.

Ap—0 to 8 inches; mixed dark grayish brown (10YR 4/2) and brown (10YR 4/3) silty clay loam, pale brown (10YR 6/3) dry; moderate fine subangular blocky structure parting to moderate medium granular; friable, slightly hard; many very fine and few fine and medium roots; common distinct very dark grayish brown (10YR 3/2) coatings on faces of peds; few fine rounded black (10YR 2/1) and

strong brown (10YR 5/6) masses of iron-manganese accumulation; about 32 percent clay; neutral; clear smooth boundary.

AC—8 to 14 inches; mixed brown (10YR 4/3) and dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium angular blocky structure; firm, hard; common very fine and few fine roots; few distinct very dark grayish brown (10YR 3/2) coatings on faces of peds; few fine and medium rounded black (10YR 2/1) and strong brown (10YR 5/6) masses of iron-manganese accumulation; about 36 percent clay; neutral; clear smooth boundary.

C1—14 to 23 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium and coarse angular blocky structure; very firm, very hard; few very fine roots; common fine and medium rounded black (10YR 2/1) and strong brown (10YR 5/6) masses of iron-manganese accumulation; about 1 percent rock fragments and 39 percent clay; neutral; abrupt wavy boundary.

C2—23 to 49 inches; dark grayish brown (2.5Y 4/2) silty clay loam; massive; very firm, extremely hard; few very fine roots; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; about 6 percent rock fragments and 40 percent clay; slightly effervescent; slightly alkaline; clear wavy boundary.

C3—49 to 63 inches; dark gray (2.5Y 4/1) silty clay loam; massive; extremely firm, extremely hard; about 8 percent rock fragments and 37 percent clay; strongly effervescent; moderately alkaline; abrupt wavy boundary.

C4—63 to 77 inches; dark yellowish brown (10YR 4/4) silty clay; massive; very firm, very hard; few fine distinct grayish brown (10YR 5/2) iron depletions; few fine and medium rounded black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 2 percent rock fragments and 45 percent clay; slightly effervescent; slightly alkaline; abrupt wavy boundary.

C5—77 to 105 inches; mixed dark gray (2.5Y 4/1) clay loam and yellowish brown (10YR 5/4) silty clay loam; massive; very firm, very hard; about 5 percent rock fragments and 38 percent clay; strongly effervescent; moderately alkaline.

MLRA Series Range in Characteristics

Depth to carbonates: Some pedons contain strata, pockets, or soil fragments in the C horizon that contain carbonates.

Depth to bedrock: More than 5 feet

Rock fragment content: Ranges from 0 to about 10 percent in the 10 to 40 inch particle-size control section

Reaction: The A horizon ranges from strongly acid to slightly alkaline and individual layers in the C horizon range from very strongly acid to moderately alkaline.

Ap or A horizon:
Hue—10YR, and less commonly 7.5YR, 2.5Y, or 5Y
Value—4 or 5 (6 or 7 dry), and less commonly 4 to 6
Chroma—2 to 4, and less commonly 1 to 8
Texture—silt loam or silty clay loam

Some pedons do not have an AC horizon.

C horizon to a depth of 48 inches:
Hue—7.5YR, 10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 8
Texture—typically silty clay loam, but individual layers are silt loam, loam, or clay loam

C horizon below a depth of 48 inches:
Colors—wide range of colors, and colors are mixed
Texture—clay loam, loam, silty clay loam, silt loam, or silty clay, or the gravelly or channery analogs

Some pedons contain stones below a depth of 48 inches and they occur at random depth, spacing, and orientation.

824B—Swanwick silty clay loam, 1 to 5 percent slopes

Setting

Landform: Till Plain
Position on Landform: Shoulder Slope

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Mine spoil and earth fill
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Swanwick and similar soils: 100 percent

Similar soils:
* Soils that contain more rock fragments throughout
* Small depressional areas that have wet soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Sylvan Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon for MLRA 115B

Sylvan silt loam, from an area of Sylvan-Bold silt loams, 18 to 35 percent slopes, eroded; in a cultivated field at an elevation of about 490 feet above mean sea level; about 1.5 miles south of Centreville in St. Clair County, Illinois (map sheet Cahokia SE, IL.); approximately 800 feet east and 780 feet north of the southwest corner of sec. 17, T. 1 N., R. 9 W.; USGS Cahokia, IL.-MO. topographic quadrangle; lat. 38 degrees 31 minutes 51 seconds N. and long. 90 degrees 7 minutes 32 seconds W.

Ap—0 to 5 inches; mixed brown (10YR 4/3) and dark yellowish brown (10YR 4/4) silt loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure parting to moderate fine granular; friable; common very fine roots; about 26 percent clay; slightly acid; abrupt smooth boundary.

Bt1—5 to 10 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; firm; common very fine roots; many distinct dark brown (10YR 3/3) clay films on faces of peds; about 32 percent clay; slightly acid; clear smooth boundary.

Bt2—10 to 19 inches; dark yellowish brown (10YR 4/6) silty clay loam; weak fine and medium subangular blocky structure; friable; few very fine roots; few fine continuous tubular pores; common distinct brown (10YR 4/3) clay films on faces of peds; few fine rounded black (10YR 2/1) masses of iron-manganese accumulation with sharp boundaries; about 29 percent clay; slightly acid; gradual smooth boundary.

BCt—19 to 25 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; few very fine roots; few fine continuous tubular pores; few faint yellowish brown (10YR 5/4) clay films on faces of peds; few fine rounded black (10YR 2/1) masses of iron-manganese accumulation with sharp boundaries; about 25 percent clay; neutral; clear smooth boundary.

C1—25 to 38 inches; yellowish brown (10YR 5/4) silt loam; massive; very friable; few very fine roots; few very fine vesicular pores; common fine faint pale brown (10YR 6/3) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine rounded black (10YR 2/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 20 percent clay; slightly effervescent; slightly alkaline; gradual smooth boundary.

C2—38 to 54 inches; brown (10YR 5/3) silt loam; massive; very friable; few very fine roots; few very fine vesicular pores; common fine faint light brownish gray (10YR 6/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine irregular black (10YR 2/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 18 percent clay; slightly effervescent; moderately alkaline; gradual smooth boundary.

C3—54 to 80 inches; light yellowish brown (2.5Y 6/3) silt loam; massive; very friable; few very fine vesicular pores; common fine faint light brownish gray (2.5Y 6/2) iron depletions and common fine prominent dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 17 percent clay; slightly effervescent; moderately alkaline.

MLRA Series Range in Characteristics

Thickness of the solum: Typically 22 to 35 inches, but ranges to 40 inches

Depth to carbonates: 22 to 40 inches, and the BC horizon contains carbonates in some pedons

A or Ap horizon:
- Hue—10YR
- Value—3 to 5 for the A horizon, and 4 to 6 for the Ap horizon
- Chroma—2 or 3 for the A horizon, and 2 to 4 for the Ap horizon
- Texture—typically silt loam, but some severely eroded pedons are silty clay loam

E horizon, where present:
- Hue—10YR
- Value—4 or 5
- Chroma—2 to 4
- Texture—silt loam

Some pedons have an EB or a BE horizon

Bt horizon, and BC horizon, where present:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam, but some pedons contain silt loam subhorizons

C horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—silt loam

962F2—Sylvan-Bold silt loams, 18 to 35 percent slopes, eroded

Setting

Landform:
* Sylvan—Bluff
* Bold—Bluff
Position on Landform:
* Sylvan—Side slope
* Bold—Side slope

Soil Properties and Qualities

Drainage:
* Sylvan—Well drained
* Bold—Well drained
Dominant parent material:
* Sylvan—Loess
* Bold—Loess, calcareous
Flooding frequency:
* Sylvan—None
* Bold—None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Sylvan and similar soils: 50 percent
Bold and similar soils: 40 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that do not have carbonates
* Areas of severely eroded soils
Dissimilar soils:
* Areas of moderately well drained soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

962G—Sylvan-Bold silt loams, 35 to 60 percent slopes

Setting

Landform:
* Sylvan—Bluff
* Bold—Bluff
Position on Landform:
* Sylvan—Side slope
* Bold—Side slope

Soil Properties and Qualities

Drainage:
* Sylvan—Well drained
* Bold—Well drained
Dominant parent material:
* Sylvan—Loess
* Bold—Loess, calcareous
Flooding frequency:
* Sylvan—None
* Bold—None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Sylvan and similar soils: 50 percent
Bold and similar soils: 40 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that do not have carbonates
* Soils that have less clay in the subsoil
Dissimilar soils:
* Soils that are severely eroded

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Tice Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Fluvaquentic Hapludolls

Typical Pedon for MLRA 115B

Tice silty clay loam, nearly level, in a cultivated field, at an elevation of about 398 feet above mean sea level; about 0.5 mile northwest of Chalfin Bridge in Monroe County, Illinois; approximately 550 feet southwest of railroad tracks and 150 feet southeast of Outlet Road in parcel S. 707, T. 4 S., R. 11 W; USGS Selma, IL.-MO. topographic quadrangle; lat. 38 degrees 12 minutes 53 seconds N. and long. 90 degrees 16 minutes 37 seconds W.

Ap—0 to 9 inches; very dark brown (10YR 2/2) silty clay loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; friable; many very fine roots; about 28 percent clay; neutral; abrupt smooth boundary.

A—9 to 16 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure; friable; many very fine roots; common continuous distinct very dark brown (10YR 2/2) organic coatings on faces of peds; about 29 percent clay; neutral; clear smooth boundary.

Bw1—16 to 24 inches; brown (10YR 4/3) silty clay loam; moderate fine subangular blocky structure; friable; common very fine roots; many continuous distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; few fine faint dark grayish brown (10YR 4/2) iron depletions; about 30 percent clay; neutral; clear smooth boundary.

Bw2—24 to 35 inches; brown (10YR 4/3) silty clay loam; weak fine prismatic structure parting to moderate fine subangular blocky; firm; common very fine roots; many continuous distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; few fine faint dark grayish brown (10YR 4/2) iron depletions; about 32 percent clay; neutral; clear smooth boundary.

Bg1—35 to 47 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate fine prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots; many continuous distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; few fine distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine rounded dark brown (7.5YR 3/3) masses of iron-manganese accumulation; about 34 percent clay; neutral; gradual smooth boundary.

Bg2—47 to 61 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate fine prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; many continuous prominent very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; common fine and medium distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine rounded dark brown (7.5YR 3/3) masses of iron-manganese accumulation; about 36 percent clay; neutral; gradual smooth boundary.

Bg3—61 to 72 inches; grayish brown (10YR 5/2) silty clay loam; weak fine prismatic structure; firm; very fine roots; common continuous distinct very dark grayish brown (10YR 3/2) clay films on vertical faces of peds; many fine and medium distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine and medium irregular very dark brown (7.5YR 2.5/2) and strong brown (7.5YR 4/6) masses of iron-manganese accumulation; about 33 percent clay; slightly acid; clear smooth boundary.

BCg—72 to 90 inches; grayish brown (10YR 5/2) silty clay loam; weak medium prismatic structure; firm; few very fine roots; few discontinuous faint dark grayish brown (10YR 4/2) clay films on vertical faces of peds and in pores and root channels; common fine and medium faint brown (10YR 4/3) and few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; about 38 percent clay; slightly acid.

MLRA Series Range in Characteristics

Depth to the base of soil development: 30 to more than 80 inches
Thickness of the mollic epipedon: Typically 10 to 20 inches, but ranges to 24 inches in some pedons
Particle-size control section: Averages between 22 and 35 percent clay

Ap or A horizon:
Hue—10YR
Value—2 or 3, (4 or 5 dry)
Chroma—1 or 2
Texture—dominantly silty clay loam, but is silt loam in some pedons and some pedons have silty clay overwash

AB or BA horizon, where present:
Hue—10YR
Value—3 or 4

Chroma—2 or 3
Texture—silty clay loam

Bw and Bg horizons:
Hue—10YR or 2.5Y, and 5Y in some gleyed pedons below 50 inches
Value—4 or 5
Chroma—2 to 4, and 1 in some gleyed pedons below 50 inches
Texture—silty clay loam, or less commonly silt loam, and commonly containing strata of silt loam, loam, clay loam, or sandy loam below a depth of 30 inches

Cg or C horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 3
Texture—dominantly silty clay loam, but includes loam, clay loam, sandy loam, or silt loam. It is commonly stratified.

Some pedons have thin strata with textures that range fine sand to silt loam.

8284A—Tice silty clay loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Alluvium
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Tice and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that contain more sand in the lower part
* Areas of poorly drained soils

Dissimilar soils:
* Well drained Landes soils on natural levees

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

8812F—Typic Hapludalfs, 18 to 35 percent slopes, occasionally flooded

Setting

Landform: Escarpment

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Lacustrine deposits
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Typic Hapludalfs and similar soils: 100 percent

Similar soils:
* Areas that are more sloping
* Areas that are moderately eroded

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

533—Urban land

Composition

Urban land: 85 percent
Dissimilar soils: 15 percent

Urban land:
* Areas covered by buildings, dwellings, roads, streets, parking lots, and lawns and gardens

Dissimilar soils:
* Areas of orthents, loamy on highway ramps and levees
* Small areas of water
* Areas of earth fill from excavations or borrow areas

Ursa Series

Taxonomic Class: Fine, smectitic, mesic Chromic Vertic Hapludalfs

Typical Pedon for MLRA 114

Ursa silty clay loam, from an area of Ruma-Ursa silty clay loams, 18 to 35 percent slopes, severely eroded; in a hay field, on a northeast-facing lower back slope with a gradient of 20 percent at an elevation of about 470 feet above mean sea level; about 2 miles east of Floraville in St. Clair County, Illinois (map sheet Millstadt SE, IL.); approximately 1,410 feet south and 600 feet west of the northeast corner of sec. 7, T. 2 S., R. 8 W.; USGS Millstadt, IL. topographic quadrangle; lat. 38 degrees 22 minutes 38 seconds N. and long. 90 degrees 1 minute 12 seconds W.

Ap—0 to 3 inches; mixed brown (10YR 4/3) and yellowish brown (10YR 5/4) silty clay loam, pale brown (10YR 6/3 and light yellowish brown (10YR 6/4) dry; moderate very fine subangular blocky structure; friable; many very fine and few fine roots; few fine rounded black (10YR 2/1) iron-manganese nodules; about 31 percent clay, 10 percent sand, and 1 percent pebbles; slightly acid; abrupt smooth boundary.

Bt1—3 to 8 inches; yellowish brown (10YR 5/4) clay loam; moderate fine subangular blocky structure; firm; common very fine and few fine roots; many distinct brown (10YR 4/3) clay films on faces of peds; common fine and medium rounded black (10YR 2/1) iron-manganese nodules; about 37 percent clay, 22 percent sand, and 2 percent pebbles; strongly acid; clear smooth boundary.

Bt2—8 to 17 inches; yellowish brown (10YR 5/6) clay; moderate medium subangular blocky structure; very firm; few very fine roots; common distinct brown (10YR 4/3) clay films on faces of peds; common fine and medium rounded black (10YR 2/1) iron-manganese nodules; about 48 percent clay, 25 percent sand, and 5 percent pebbles; strongly acid; clear smooth boundary.

Bt3—17 to 29 inches; yellowish brown (10YR 5/6) silty clay; weak fine prismatic structure parting to moderate fine and medium angular blocky; very firm; few very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine irregular black (10YR 2/1) masses of iron-manganese accumulation; about 45 percent clay, 12 percent sand, and 4 percent pebbles; moderately acid; gradual smooth boundary.

Bt4—29 to 38 inches; yellowish brown (10YR 5/6) silty clay; weak medium prismatic structure parting to weak medium angular blocky; very firm; few very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine and medium irregular black (10YR 2/1) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 42 percent clay, 13 percent sand, and 2 percent pebbles; slightly acid; gradual smooth boundary.

Bt5—38 to 54 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium prismatic structure parting to moderate fine and medium angular blocky; firm; few very fine roots; common distinct brown (10YR 4/3) clay films on faces of peds and few prominent black (10YR 2/1) iron-manganese coatings on vertical faces of peds; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 38 percent clay, 15 percent sand, and 1 percent pebbles; neutral; clear smooth boundary.

Bt6—54 to 68 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; common prominent dark grayish brown (10YR 4/2) and grayish brown (10YR 5/2) clay films on faces of peds and common prominent black (10YR 2/1) iron-manganese coatings on vertical faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 36 percent clay, 15 percent sand, and 1 percent pebbles; neutral; gradual smooth boundary.

BCt—68 to 80 inches; yellowish brown (10YR 5/4) clay loam; weak medium prismatic structure; firm; common prominent grayish brown (10YR 5/2) clay films on vertical faces of peds; common medium faint pale brown (10YR 6/3) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular black (10YR 2/1) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 31 percent clay, 25 percent sand, and 2 percent pebbles; neutral.

MLRA Series Range in Characteristics

Depth to the base of soil development: 50 to 60 inches or more
Thickness of loess or silty pedisediment: 0 to 20 inches
Depth to carbonates: More than 60 inches, where present

Ap or A horizon:
Hue—7.5YR or 10YR
Value—4 or 5 (6 or 7 dry)

Chroma—2 or 4
Texture—typically silt loam or loam, but eroded pedons include silty clay loam, clay loam, or clay

Uneroded pedons typically have E horizons and BE or Bt horizons formed in loess or pedisediment above the till

Bt or 2Bt horizon that formed in till:
Hue—7.5YR or 10YR, and the lower part of some pedons have hue of 2.5Y or 5Y
Value—4 to 6
Chroma—3 to 8, and the lower part of some pedons have chroma of 1 to 8
Texture—loam, clay loam, silty clay loam, silty clay, or clay

BC or 2BC horizon:
Hue—7.5YR or 10YR, and less commonly 2.5Y or 5Y
Value—4 to 6
Chroma—1 to 6
Texture—loam, clay loam, silty clay, or clay

C or 2C horizon:
Hue—7.5YR or 10YR, and less commonly 2.5Y or 5Y
Value—4 to 6
Chroma—1 to 6
Texture—loam, clay loam, silty clay, or clay

Some pedons contain buried horizons of older soils beneath the modern soil.

Virden Series

Taxonomic Class: Fine, smectitic, mesic Vertic Argiaquolls

Typical Pedon for MLRA 114

Virden silt loam, slightly depressional in a cultivated field, at an elevation of about 421 feet above mean sea level; about 2 miles east of Mascoutah in St. Clair County, Illinois (map sheet Mascoutah NE, IL.); 1,410 feet south and 2,000 feet east of the NW corner of sec. 34, T. 1 N., R. 6 W.; USGS Mascoutah, IL. topographic quadrangle; lat. 38 degrees 29 minutes 28 seconds N. and long. 89 degrees 45 minutes 14 seconds W.

Ap—0 to 10 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate medium granular structure; friable; many very fine roots; about 25 percent clay; neutral; clear smooth boundary.

A—10 to 15 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate fine subangular blocky structure parting to moderate medium granular; firm; common very fine roots; few fine rounded very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation; about 26 percent clay; neutral; clear smooth boundary.

Btg1—15 to 22 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate fine prismatic structure parting to moderate fine angular blocky; firm; common very fine roots; many distinct black (10YR 2/1) organo-clay films on faces of peds; few fine distinct brown (10YR 4/3) masses of iron accumulation in the matrix; few fine rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; about 38 percent clay; neutral; clear smooth boundary.

Btg2—22 to 38 inches; grayish brown (2.5Y 5/2) silty clay loam; strong medium prismatic structure parting to moderate medium angular blocky; firm; common very fine roots; many distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; common fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation and few medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; about 37 percent clay; slightly acid; clear smooth boundary.

Btg3—38 to 52 inches; gray (2.5Y 5/1) silty clay loam; moderate medium prismatic structure parting to weak medium angular blocky; firm; few very fine roots; many distinct dark gray (10YR 4/1) clay films on faces of peds; common fine and medium prominent yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation and few medium rounded black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 36 percent clay; slightly acid; clear smooth boundary.

Btg4—52 to 66 inches; gray (2.5Y 5/1) silty clay loam; weak medium prismatic structure parting to weak coarse angular blocky; firm; few very fine roots; common distinct dark gray (10YR 4/1) clay films on faces of peds; common fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium and coarse rounded black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 33 percent clay; neutral; gradual smooth boundary.

BCtg—66 to 74 inches; gray (2.5Y 6/1) silty clay loam; weak coarse subangular blocky structure; friable; few very fine roots; few distinct dark gray (10YR 4/1) clay films lining root channels; common fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation; about 28 percent clay; neutral; gradual smooth boundary.

Cg—74 to 86 inches; gray (2.5Y 6/1) silt loam; massive; friable; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation; about 26 percent clay; neutral.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: 40 to 60 inches or more
Thickness of the mollic epipedon: 10 to 24 inches, and commonly extends into the upper part of the B horizon
Thickness of loess: 60 to 80 inches or more
Depth to carbonates: Below 50 inches, where present

Ap, A, or AB horizons:
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 or 2
Texture—silt loam or silty clay loam

Btg and BCtg horizons:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—2 to 6
Chroma—0 to 2
Texture—silty clay loam, silty clay, or silt loam

Cg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam or silt loam

50A—Virden silt loam, 0 to 2 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Poorly drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Virden and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that contain more clay in the surface layer
* Areas of somewhat poorly drained soils
* Soils with a concentration of exchangeable sodium in the subsoil

Dissimilar soils:
* Piasa soils that have a natric horizon
* Small areas of depressional soils that remain wet for periods that extend into the growing season

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

885A—Virden-Fosterburg silt loams, 0 to 2 percent slopes

Setting

Landform:
* Virden—Till Plain
* Fosterburg—Till Plain

Position on Landform:
* Virden—Interfluve
* Fosterburg—Interfluve

Soil Properties and Qualities

Drainage:
* Virden—Poorly drained
* Fosterburg—Poorly drained

Dominant parent material:
* Virden—Loess
* Fosterburg—Loess

Flooding frequency:
* Virden—None
* Fosterburg—None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Virden and similar soils: 50 percent
Fosterburg and similar soils: 40 percent
Dissimilar soils: 10 percent

Similar soils:
* Areas of somewhat poorly drained soils
* Soils that have a thinner dark surface horizon

Dissimilar soils:
* Small areas of depressional soils that remain wet for periods that extend into the growing season

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Wabash Series

Taxonomic Class: Fine, smectitic, mesic Cumulic Vertic Endoaquolls

Typical Pedon for MLRA 114

Wabash silty clay, slightly depressional, in a cultivated field, at an elevation of about 405 feet above mean sea level; about 3 miles southeast of Albers in Clinton County, Illinois; approximately 1,320 feet south and 620 feet east of the northwest corner of sec. 20, T. 1 N., R. 4 W.; USGS Breese, IL. topographic quadrangle; lat. 38 degrees 31 minutes 12 seconds N. and long. 89 degrees 34 minutes 8 seconds W.

Ap—0 to 10 inches; very dark gray (10YR 3/1) silty clay, gray (10YR 5/1) dry; moderate medium angular blocky structure; firm; common very fine and fine roots; many faint very dark gray (10YR 3/1) pressure faces on faces of peds; common fine and medium irregular brown (7.5YR 4/4) masses of iron-manganese accumulation; about 51 percent clay; moderately acid; abrupt smooth boundary.

A1—10 to 26 inches; black (N 2.5/0) silty clay, very dark gray (N 3/0) dry; strong medium prismatic structure parting to strong medium angular blocky; very firm; common very fine roots; many distinct black (N 2.5/0) organo-clay films on faces of peds; common fine and medium irregular brown (7.5YR 4/4) masses of iron-manganese accumulation; about 53 percent clay; moderately acid; clear smooth boundary.

A2—26 to 54 inches; black (N 2.5/0) silty clay, very dark gray (N 3/0) dry; strong medium prismatic structure parting to strong fine angular blocky; very firm; few very fine roots; many distinct black (N 2.5/0) organo-clay films on faces of peds; common fine and medium irregular brown (7.5YR 4/4) masses of iron-manganese accumulation and few fine and medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; about 52 percent clay; slightly acid; clear smooth boundary.

Bg1—54 to 68 inches; dark gray (5Y 4/1) silty clay; strong medium prismatic structure parting to strong fine angular blocky; very firm; few very fine roots; many distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; common fine and medium irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation and few medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; about 48 percent clay; slightly acid; clear smooth boundary.

Bg2—68 to 78 inches; dark gray (5Y 4/1) silty clay; strong medium prismatic structure parting to strong fine and medium angular blocky; very firm; few very fine roots; common distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; common fine and medium irregular strong brown (7.5YR 4/6) masses of iron-manganese and few medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; about 46 percent clay; slightly acid; clear smooth boundary.

BCg—78 to 86 inches; gray (5Y 5/1) silty clay; moderate medium prismatic parting to moderate fine and medium angular blocky; firm; few prominent very dark gray (10YR 3/1) organo-clay films on vertical faces of peds and lining root channels; common fine and medium irregular strong brown (7.5YR 5/6) masses of iron-manganese and few medium rounded black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; few very dark gray (10YR 3/1) krotovinas; about 43 percent clay; slightly acid.

MLRA Series Range in Characteristics

Depth to the base of soil development: More than 60 inches

Thickness of the mollic epipedon: More than 36 inches

Depth to carbonates: More than 40 inches, where present

Ap and A horizons:
- Hue—10YR, 2.5Y, 5Y, or neutral
- Value—2 or 3 (3 to 5 dry)
- Chroma—0 to 2
- Texture—silty clay or clay, and overwash phases include silty clay loam or silt loam

Bg horizon and BCg horizon, where present:
- Hue—10YR, 2.5Y, 5Y, or neutral
- Value—2 to 5

Chroma—0 to 2
Texture—silty clay or clay

Cg horizon, where present:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam, silty clay, or clay

3083L—Wabash silty clay, 0 to 2 percent slopes, frequently flooded, long duration

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Very poorly drained
Dominant parent material: Alluvium
Flooding frequency: Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Wabash and similar soils: 100 percent

Similar soils:
* Soils with a thinner mollic epipedon
* Soils that contain less clay throughout

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Wagner Series

Taxonomic Class: Fine, smectitic, mesic Vertic Albaqualfs

Typical Pedon for MLRA 114

Wagner silt loam, nearly level, in a cultivated field, on a lake plain at an elevation of about 395 feet above mean sea level; about 3 miles northwest of St. Libory in St. Clair County, Illinois (map sheet Venedy SW, IL.); approximately 2,372 feet north and 650 feet west of the southeast corner of sec. 35, T. 1 S., R. 6 W.; USGS Venedy, IL. topographic quadrangle; lat. 38 degrees 23 minutes 58 seconds N. and long. 89 degrees 43 minutes 33 seconds W.

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; many very fine roots; few fine constricted tubular pores; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation and few fine rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 20 percent clay; neutral; abrupt smooth boundary.

Eg1—9 to 14 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; weak thick platy structure parting to moderate fine granular; friable; many very fine roots; few fine constricted tubular pores; few distinct white (10YR 8/1, dry) clay depletions on faces of peds; few fine faint gray (10YR 6/1) iron depletions and few fine faint brown (10YR 5/3) masses of iron accumulation in the matrix; common fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation and common fine rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 21 percent clay; moderately acid; abrupt smooth boundary.

Eg2—14 to 17 inches; light brownish gray (10YR 6/2) silt loam, light gray (10YR 7/2) dry; weak medium platy structure parting to moderate very fine subangular blocky; friable; common very fine roots; common distinct white (10YR 8/1, dry) clay depletions on faces of peds; common fine faint brown (10YR 5/3) masses of iron accumulation in the matrix; common fine irregular strong brown (7.5YR 5/6) and few fine rounded yellowish red (5YR 5/6) masses of iron-manganese accumulation and common fine rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 22 percent clay; very strongly acid; abrupt smooth boundary.

2Btg1—17 to 28 inches; dark grayish brown (10YR 4/2) silty clay; weak medium prismatic structure; very firm; few very fine roots; few prominent light gray (10YR 7/2, dry) clay depletions on faces of peds and common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; few fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; common fine irregular strong brown (7.5YR 5/6) and common fine and medium rounded yellowish red (5YR 5/6) masses of iron-manganese accumulation and few fine rounded black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 48 percent clay; very strongly acid; clear smooth boundary.

2Btg2—28 to 35 inches; grayish brown (2.5Y 5/2) silty clay; weak medium prismatic structure parting to weak medium angular blocky; very firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 46 percent clay; strongly acid; clear smooth boundary.

2Btg3—35 to 44 inches; olive gray (5Y 5/2) silty clay loam; moderate fine prismatic structure parting to moderate fine and medium angular blocky; firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds and few prominent very dark grayish brown (10YR 3/2) organo-clay films lining root channels; common fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few medium irregular black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 38 percent clay; moderately acid; gradual smooth boundary.

2Btg4—44 to 55 inches; light olive gray (5Y 6/2) silty clay; weak medium prismatic structure parting to moderate fine angular blocky; very firm; few very fine roots; few very fine vesicular pores; common distinct grayish brown (2.5Y 5/2) clay films on faces of peds and few prominent very dark grayish brown (10YR 3/2) organo-clay films lining root channels; many fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 43 percent clay; slightly acid; clear smooth boundary.

2Btg5—55 to 67 inches; light olive gray (5Y 6/2) silty clay; weak medium prismatic structure parting to moderate medium angular blocky; very firm; few fine vesicular pores; common distinct dark grayish brown (2.5Y 4/2) clay films on faces of peds and few prominent very dark grayish brown (10YR 3/2) organo-clay films lining root channels; common fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common medium and coarse irregular reddish yellow (7.5YR 6/8) and yellowish red (5YR 4/6) masses of iron-manganese accumulation and few medium irregular black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; few gray (2.5Y 5/1) krotovinas; about 42 percent clay; neutral; clear smooth boundary.

2BCtg—67 to 72 inches; gray (5Y 5/1) silty clay loam; weak coarse prismatic structure; firm; few fine vesicular pores; common distinct dark grayish brown (2.5Y 4/2) clay films on vertical faces of peds and few prominent very dark gray (2.5Y 3/1) organo-clay films lining root channels and pores; common coarse prominent strong brown (7.5YR 4/6) and few medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine rounded yellowish red (5YR 4/6) masses of iron-manganese accumulation; about 37 percent clay; neutral; clear smooth boundary.

2Cg—72 to 80 inches; gray (5Y 6/1) silty clay loam; massive with widely-spaced cleavage planes; firm; few fine vesicular pores; few distinct very dark gray (2.5Y 3/1) organo-clay films lining root channels and pores; common fine and medium prominent yellowish brown (10YR 5/6) and few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few medium irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation; about 32 percent clay; slightly alkaline.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: More than 48 inches

Thickness of loess or other silty material: 12 to 20 inches

Depth to carbonates: In the 2Cg horizon, where present

Ap or A horizon:
- Hue—10YR
- Value—2 or 3 (4 or 5 dry)
- Chroma—1 or 2
- Texture—silt loam

Eg horizon:
- Hue—10YR
- Value—4 to 6
- Chroma—1 or 2
- Texture—silt loam, or less commonly, silty clay loam

Some pedons have a B/E horizon less than 3 inches in thickness that is mostly Bt material with clay depletions on faces of peds.

2Btg horizon:
- Hue—10YR, 2.5Y, 5Y, or neutral
- Value—4 to 6
- Chroma—0 to 2
- Texture—typically silty clay or clay, but some pedons have subhorizons that are silty clay loam

Some pedons have a 2BCg horizon

2Cg horizon:
- Hue—10YR, 2.5Y, 5Y, or neutral
- Value—4 to 6

Chroma—0 to 2
Texture—silty clay loam, silty clay, or clay; and is stratified in some pedons

8026A—Wagner silt loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform: Lake Plain
Position on Landform: Broad Flat

Soil Properties and Qualities

Drainage: Poorly drained
Dominant parent material: Lacustrine deposits
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Wagner and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that contain less clay in the subsoil
* Areas of somewhat poorly drained soils
Dissimilar soils:
* Areas of short steep slopes on risers

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Wakeland Series

Taxonomic Class: Coarse-silty, mixed, superactive, nonacid, mesic Aeric Fluvaquents

Typical Pedon for MLRA 114

Wakeland silt loam, nearly level, in a cultivated field, at an elevation of about 485 feet above mean sea level; about 2 miles northeast of Highland in Madison County, Illinois; approximately 1,600 feet north and 1,330 feet east of the center of sec. 34, T. 4 N., R. 5 W.; USGS Grantfork, IL. topographic quadrangle; lat. 38 degrees 45 minutes 18 seconds N. and long. 89 degrees 38 minutes 27 seconds W.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; very thin lenses of light gray (10YR 7/1) clean silt and very fine sand; weak fine granular structure; friable; many very fine and few fine roots; few fine continuous tubular pores; neutral; clear smooth boundary.

Cg1—8 to 34 inches; dark grayish brown (10YR 4/2) silt loam; thin lenses of light brownish gray (10YR 6/2) clean silt and very fine sand; massive; friable; few very fine roots; common very fine and fine continuous tubular pores; few fine prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; neutral; gradual smooth boundary.

Cg2—34 to 44 inches; dark grayish brown (10YR 4/2) silt loam; massive; friable; few very fine roots; few very fine continuous tubular pores; common medium faint light brownish gray (10YR 6/2) iron depletions and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; neutral; clear smooth boundary.

Cg3—44 to 68 inches; grayish brown (10YR 5/2) silt loam; massive; friable; common medium faint dark grayish brown (10YR 4/2) and light brownish gray (10YR 6/2) iron depletions and common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few medium rounded dark brown (7.5YR 3/2) iron-manganese nodules; slightly acid; clear smooth boundary.

Ab—68 to 80 inches; very dark grayish brown (10YR 3/2) silt loam; moderate fine subangular blocky structure; friable; few fine rounded black (10YR 2/1) iron-manganese nodules; slightly acid.

MLRA Series Range in Characteristics

Ap or A horizon:
Hue—10YR
Value—4 or 5 for Ap, 3 or 4 for A
Chroma—2 to 4 for Ap, 1 for A
Texture—silt loam

C and/or Cg horizon to a depth of about 30 inches:
Hue—10YR, and less commonly 7.5YR
Value—4 to 6
Chroma—1 to 4
Texture—silt loam

C and/or Cg horizon between a depth of 30 to 80 inches:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 6

Texture—silt loam, and below a depth of 40 inches some pedons have thin layers which range from loam to fine sandy loam

3333A—Wakeland silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Somewhat poorly drained
Dominant parent material: Alluvium
Flooding frequency: Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Wakeland and similar soils: 100 percent

Similar soils:
* Soils that contain more clay throughout
* Areas of poorly drained and/or moderately well drained soils
* Soils that have a dark buried soil above a depth of 40 inches

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Wakenda Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Typic Argiudolls

Typical Pedon for MLRA 115B

Wakenda silt loam, moderately sloping, in a cultivated field, at an elevation of about 500 feet above mean sea level; about 2.5 miles east of Belleville in St. Clair County, Illinois (map sheet O'Fallon SE, IL.); approximately 1,900 feet west and 1,300 feet south of the northeast corner of sec. 30, T. 1 N., R. 7 W.; USGS O'Fallon, IL. topographic quadrangle; lat. 38 degrees 30 minutes 32 seconds N. and long. 89 degrees 55 minutes 1 second W.

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; many very fine and common fine roots; about 22 percent clay; slightly acid; abrupt smooth boundary.

AB—8 to 13 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak fine subangular blocky structure parting to moderate fine granular; friable; many very fine and few fine roots; few fine and medium continuous tubular pores; fragments of brown (10YR 4/3) subsoil mixed by cultivation; common faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; about 25 percent clay; slightly acid; clear smooth boundary.

Bt1—13 to 21 inches; brown (10YR 4/3) silty clay loam; moderate fine subangular blocky structure; firm; many very fine and few fine roots; few fine continuous tubular pores; many distinct dark brown (10YR 3/3) clay films on faces of peds; about 29 percent clay; moderately acid; clear smooth boundary.

Bt2—21 to 29 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine prismatic structure parting to moderate fine and medium subangular blocky; firm; common very fine roots; few fine continuous tubular pores; many distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; about 32 percent clay; slightly acid; gradual smooth boundary.

Bt3—29 to 39 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots; few fine continuous tubular pores; many distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; about 31 percent clay; slightly acid; gradual smooth boundary.

Bt4—39 to 49 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium prismatic structure parting to weak medium subangular blocky; friable; common very fine roots; common fine and medium continuous tubular pores; common distinct dark yellowish brown (10YR 3/4) clay films on faces of peds and few prominent dark brown (10YR 3/3) clay films lining root channels and pores; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; about 29 percent clay; slightly acid; gradual smooth boundary.

BCt—49 to 60 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium and coarse subangular blocky structure; friable; few very fine roots; few

very fine and fine vesicular and tubular pores; few faint brown (10YR 4/3) clay films on vertical faces of peds and few distinct dark brown (10YR 3/3) clay films lining root channels and pores; few fine faint brown (10YR 5/3) iron depletions and few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; about 26 percent clay; slightly acid; gradual smooth boundary.

C—60 to 80 inches; yellowish brown (10YR 5/4) silt loam; massive; very friable; few very fine roots; common fine and medium vesicular and tubular pores; few fine faint pale brown (10YR 6/3) iron depletions and few medium distinct brown (7.5YR 4/4) masses of iron accumulation in the matrix; about 21 percent clay; slightly acid.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: 40 to 65 inches or more
Thickness of the mollic epipedon: 10 to 18 inches, but ranges to 24 inches

Ap and/or A horizons:
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 to 3
Texture—silt loam

Some pedons have a BA horizon

Bt horizon:
Hue—7.5YR or 10YR
Value—3 or 4 in the upper part, and 4 or 5 in the lower part
Chroma—2 to 4 in the upper part, and 3 or 4 in the lower part
Texture—silty clay loam or silt loam

C horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—silt loam, but silty clay loam is within the range

441B—Wakenda silt loam, 2 to 5 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Wakenda and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that have a thinner dark surface horizon
* Areas of moderately well drained soils
Dissimilar soils:
* Areas of somewhat poorly drained Edwardsville soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

441C2—Wakenda silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Wakenda and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that have a thinner dark surface horizon
* Areas of moderately well drained soils
Dissimilar soils:
* Wakeland soils in small upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Wilbur Series

Taxonomic Class: Coarse-silty, mixed, superactive, mesic Fluvaquentic Eutrochrepts

Typical Pedon for MLRA 115B

Wilbur silt loam, nearly level, in a cultivated field, at an elevation of about 445 feet above mean sea level; about 1 mile north of Columbia in Monroe County, Illinois (map sheet Columbia NW, IL.); approximately 1,200 feet west and 1,100 feet south of the northeast corner of sec. 9, T. 1 S., R. 10 W.; USGS Columbia, IL. topographic quadrangle; lat. 38 degrees 28 minutes 7 seconds N. and long. 90 degrees 12 minutes, 15 seconds W.

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; common very fine roots; few fine constricted tubular pores; about 18 percent clay; slightly acid; clear smooth boundary.

Bw1—7 to 15 inches; brown (10YR 4/3) silt loam; weak fine subangular blocky structure; friable; few very fine roots; common fine and medium continuous tubular pores; few medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 17 percent clay; neutral; clear smooth boundary.

Bw2—15 to 22 inches; brown (10YR 4/3) silt loam; weak fine subangular blocky structure; friable; few very fine roots; few fine and medium continuous tubular pores; few fine faint grayish brown (10YR 5/2) iron depletions; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation and few fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 16 percent clay; neutral; clear smooth boundary.

Bw3—22 to 41 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; few very fine roots; common very fine and fine constricted tubular pores; common fine faint grayish brown (10YR 5/2) iron depletions; common fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation and few fine rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; few thin light yellowish brown (10YR 6/4) strata; about 16 percent clay; neutral; clear smooth boundary.

Cg—41 to 65 inches; dark grayish brown (10YR 4/2) silt loam; massive; friable; few very fine roots; few fine constricted tubular pores; few fine distinct dark yellowish brown (10YR 3/4) masses of iron accumulation in the matrix; common fine irregular black (7.5YR 2.5/1) and brown (7.5YR 4/4) masses of iron-manganese accumulation; about 22 percent clay; neutral; clear smooth boundary.

2Ab—65 to 80 inches; very dark gray (2.5Y 3/1) silty clay loam; moderate fine subangular blocky structure; firm; common fine irregular strong brown (7.5YR 4/6) masses of iron manganese accumulation and common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with diffuse strong brown (7.5YR 5/6) boundaries; about 36 percent clay; slightly acid.

MLRA Series Range in Characteristics

Depth to the base of the cambic horizon: 30 to 50 inches

Depth to buried soil: More than 60 inches, where present

Rock fragments: Less than 1 percent throughout

Particle-size control section: Averages from 10 to 17 percent clay and from 1 to 15 percent sand coarser than very fine sand - very fine sand content averages from 1 to 10 percent

Reaction: Moderately acid to slightly alkaline

Ap or A horizon:
Hue—10YR
Value—4 (6 dry)
Chroma—2 to 4
Texture—silt loam

Bw horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam

C horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 6
Texture—silt loam or loam, and some pedons are stratified

3336A—Wilbur silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood Plain

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Alluvium
Flooding frequency: Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Wilbur and similar soils: 100 percent

Similar soils:
* Soils that contain more clay throughout
* Soils that have a dark buried soil above a depth of 60 inches
* Areas of somewhat poorly drained and/or well drained soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Winfield Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

Typical Pedon for MLRA 115B

Winfield silt loam, on a 3 percent south-facing convex slope, in a cultivated field, at an elevation of about 540 feet above mean sea level; about 3 miles north of O'Fallon in St. Clair County, Illinois (map sheet Collinsville SE, IL.); approximately 205 feet east and 610 feet south of the northwest corner of sec. 9, T. 2 N., R. 7 W.; USGS, Collinsville, IL. topographic quadrangle; lat. 38 degrees 38 minutes 32 seconds N. and long. 89 degrees 53 minutes 27 seconds W.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; many very fine roots; about 22 percent clay; neutral; abrupt smooth boundary.

E—9 to 13 inches; brown (10YR 5/3) silt loam, pale brown (10YR 6/3) dry; weak medium platy structure parting to moderate very fine subangular blocky; friable; common very fine roots; few faint light gray (10YR 7/2, dry) clay depletions on faces of peds; few fine rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 25 percent clay; moderately acid; clear smooth boundary.

Bt1—13 to 21 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine subangular blocky structure; firm; common very fine roots; few distinct light gray (10YR 7/2, dry) clay depletions along root channels; many distinct brown (10YR 4/3) clay films on faces of peds; common fine and medium rounded black (10YR 2/1) iron-manganese nodules with sharp strong brown (7.5YR 4/6) boundaries; about 33 percent clay; moderately acid; clear smooth boundary.

Bt2—21 to 30 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; common very fine roots; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) iron-manganese nodules with sharp strong brown (7.5YR 4/6) boundaries; about 32 percent clay; strongly acid; gradual smooth boundary.

Btg1—30 to 40 inches; light brownish gray (10YR 6/2) silty clay loam; weak fine prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine and medium distinct yellowish brown (10YR 5/4) and few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 30 percent clay; moderately acid; clear smooth boundary.

Btg2—40 to 56 inches; light brownish gray (10YR 6/2) silty clay loam; weak medium prismatic structure parting to weak medium and coarse subangular blocky; firm; few very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; many medium and coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron-

manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 28 percent clay; moderately acid; clear smooth boundary.

BCtg—56 to 62 inches; light brownish gray (2.5Y 6/2) silt loam; weak medium angular blocky structure; friable; few very fine roots; few faint brown (10YR 5/3) clay films on faces of peds; common fine and medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; common medium irregular black (10YR 2/1) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; about 25 percent clay; slightly acid; gradual smooth boundary.

Cg—62 to 80 inches; light brownish gray (2.5Y 6/2) silt loam, massive; friable; common medium and coarse prominent strong brown (7.5YR 4/6) and few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium and coarse irregular black (10YR 2/1) masses of iron manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; about 20 percent clay; neutral.

MLRA Series Range in Characteristics

Depth to the base of the argillic horizon: 35 to 65 inches
Thickness of loess: More than 80 inches
Particle-size control section: Clay content averages 27 to 35 percent in the particle-size control section and sand content averages less than 7 percent throughout the series control section.
Reaction: Very strongly acid to neutral

Ap horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 or 3
Texture—silt loam or silty clay loam

Some pedons have an A horizon less than 6 inches in thickness with color value of 3 and chroma of 2 or 3

E horizon, where present:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture—silt loam or silty clay loam

BE horizon, where present:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam or silty clay loam

The upper part of the Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam

The lower part of the Bt horizon and the Btg horizon:
Hue—10YR
Value—4 to 6
Chroma—1 to 6
Texture—silt loam or silty clay loam

Some pedons have a BC or BCg horizon

C or Cg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silt loam

477B—Winfield silt loam, 2 to 5 percent slopes

Setting

Landform: Till Plain
Position on Landform: Interfluve

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Winfield and similar soils: 100 percent

Similar soils:
* Soils that have a darker surface horizon
* Areas of somewhat poorly drained and/or well drained soils
* Areas of moderately eroded soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

477B2—Winfield silt loam, 2 to 5 percent slopes, eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Winfield and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that contain less clay in the subsoil
* Areas of severely eroded soils
Dissimilar soils:
* Wakeland soils in small upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

477C2—Winfield silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Winfield and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Areas of severely eroded soils
Dissimilar soils:
* Wakeland soils in small upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

477C3—Winfield silty clay loam, 5 to 10 percent slopes, severely eroded

Setting

Landform: Till Plain
Position on Landform: Side Slope

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Winfield and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that contain less clay in the subsoil
* Areas of moderately eroded soils
Dissimilar soils:
* Wakeland soils in small upland drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

2477B—Winfield-Urban land complex, 2 to 8 percent slopes

Setting

Landform:
* Winfield—Till Plain

Soil Properties and Qualities

Drainage: Moderately well drained
Dominant parent material: Loess
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Winfield and similar soils: 50 percent
Urban land: 40 percent
Dissimilar soils: 10 percent

Similar soils:
* Areas of somewhat poorly drained soils

Dissimilar soils:
* Wakeland soils in small upland drainageways

Urban land:
* Areas covered by buildings, dwellings, roads, streets, parking lots, and lawns and gardens

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

Worthen Series

Taxonomic Class: Fine-silty, mixed, superactive, mesic Cumulic Hapludolls

Typical Pedon for MLRA 115B

Worthen silt loam, nearly level, in a cultivated field, at an elevation of about 425 feet above mean sea level; about 1 mile north of Caseyville in St. Clair County, Illinois (map sheet Monks Mound SE, IL.); approximately 670 feet west and 1,500 feet north of the southeast corner of sec. 6, T. 2 N., R. 8 W.; USGS Monks Mound, IL. topographic quadrangle; lat. 38 degrees 38 minutes 52 seconds N. and long. 90 degrees 1 minute 26 seconds W.

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; very friable; common very fine roots; few very fine and fine tubular pores; about 18 percent clay; slightly acid; abrupt smooth boundary.

A—8 to 21 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine and medium granular structure; friable; common very fine roots; few very fine and fine tubular pores; about 20 percent clay; slightly acid; clear smooth boundary.

AB—21 to 30 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak fine subangular blocky structure parting to weak fine granular; friable; few very fine roots; common very fine and fine tubular pores; about 21 percent clay; slightly acid; clear smooth boundary.

Bw1—30 to 46 inches; brown (10YR 4/3) silt loam; weak fine and medium subangular blocky structure; friable; few very fine roots; few very fine tubular pores; very few distinct very dark grayish brown (10YR 3/2) organo-clay films in root channels and in pores; very few distinct very pale brown (10YR 7/3, dry) clay depletions on faces of peds; about 25 percent clay; slightly acid; clear smooth boundary.

Bw2—46 to 63 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; few very fine roots; few very fine tubular pores; very few distinct very dark grayish brown (10YR 3/2) organo-clay films in root channels and in pores; few distinct very pale brown (10YR 7/3, dry) clay depletions on faces of peds; about 23 percent clay; slightly acid; clear smooth boundary.

C—63 to 80 inches; brown (10YR 4/3) silt loam; massive; friable; about 26 percent clay; neutral.

MLRA Series Range in Characteristics

Depth to the base of soil development: 30 to about 65 inches
Thickness of the mollic epipedon: 24 to 36 inches
Depth to carbonates: Some pedons contain carbonates in the C horizon below a depth of 50 inches.

Ap and A horizons:
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 to 3
Texture—silt loam

Some pedons have an BA horizon.

Bw horizon:
Hue—7.5YR or 10YR
Value—3 or 4 in the upper part, and 4 or 5 in the lower part
Chroma—2 to 4 in the upper part, and 3 to 6 in the lower part
Texture—silt loam

Some pedons have a BC horizon.

C horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam

37A—Worthen silt loam, 0 to 2 percent slopes

Setting

Landform: Alluvial Fan

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Slope alluvium
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Worthen and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that contain carbonates
* Soils that have a thinner mollic epipedon
* Soils that contain more clay in the subsoil and/or substratum

Dissimilar soils:
* Somewhat poorly drained Littleton soils
* Areas of Wakeland soils along drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

37B—Worthen silt loam, 2 to 5 percent slopes

Setting

Landform: Alluvial Fan

Soil Properties and Qualities

Drainage: Well drained
Dominant parent material: Slope alluvium
Flooding frequency: None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Worthen and similar soils: 90 percent
Dissimilar soils: 10 percent

Similar soils:
* Soils that contain carbonates
* Soils that have a thinner mollic epipedon
* Soils that contain more clay in the subsoil and/or substratum

Dissimilar soils:
* Somewhat poorly drained Littleton soils
* Areas of Wakeland soils along drainageways

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Wildlife Habitat" section
* "Engineering" section

* "Soil Properties" section

Zipp Series

Taxonomic Class: Fine, mixed, active, nonacid, mesic Vertic Endoaquepts

Typical Pedon for MLRA 114

Zipp silty clay, in an oxbow, on a lake plain, in a cultivated field, at an elevation of about 388 feet above mean sea level; about 2.5 miles northeast of Fayetteville in St. Clair County, Illinois (map sheet Mascoutah SE, IL.); approximately 50 feet north and 1,700 feet east of the southwest corner of sec. 34, T. 1 S., R. 6 W.; USGS Mascoutah, IL. topographic quadrangle; lat. 38 degrees 23 minutes 37 seconds N. and long. 89 degrees 45 minutes 16 seconds W.

Ap—0 to 8 inches; very dark gray (10YR 3/1) silty clay, gray (10YR 5/1) dry; weak fine angular blocky structure; firm; common very fine roots; common fine rounded black (N 2.5/0) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation; moderately acid; abrupt smooth boundary.

Bg1—8 to 17 inches; dark gray (2.5Y 4/1) silty clay; weak fine prismatic structure parting to moderate medium angular blocky; very firm; few very fine roots; few fine prominent yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine rounded black (N 2.5/0) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation; strongly acid; clear smooth boundary.

Bg2—17 to 26 inches; dark gray (2.5Y 4/1) silty clay; weak medium prismatic structure parting to weak medium angular blocky; very firm; few very fine roots; few faint gray (2.5Y 5/1) pressure faces on faces of peds; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine rounded black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; strongly acid; clear smooth boundary.

Bg3—26 to 37 inches; dark gray (2.5Y 4/1) silty clay; weak medium prismatic structure parting to weak medium and coarse angular blocky; very firm; few very fine roots; common distinct dark gray (2.5Y 4/1) pressure faces on faces of peds; few fine distinct light olive brown (2.5Y 5/4) masses of iron accumulation in the matrix; few fine and medium rounded black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; slightly acid; clear smooth boundary.

Bg4—37 to 51 inches; gray (5Y 5/1) silty clay; weak medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; many distinct gray (5Y 5/1) pressure faces on faces of peds; few distinct shiny olive gray (5Y 5/2) slickensides; few fine distinct gray (N 5/0) iron depletions along root channels and few fine and medium prominent light olive brown (2.5Y 5/6) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; neutral; clear smooth boundary.

BCkg—51 to 63 inches; gray (5Y 5/1) silty clay; weak medium prismatic structure parting to weak medium and coarse angular blocky; firm; few very fine roots; few faint gray (5Y 5/1) pressure faces on faces of peds; common distinct shiny olive gray (5Y 5/2) slickensides; few fine distinct gray (N 5/0) iron depletions along root channels and few medium prominent light olive brown (2.5Y 5/6) masses of iron accumulation in the matrix; few fine irregular black (N 2.5/0) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation with sharp boundaries; common fine irregular white (10YR 8/1) masses of carbonate accumulation and common medium and coarse irregular light gray (10YR 7/2) carbonate concretions with clear white (10YR 8/1) boundaries; strongly effervescent; slightly alkaline; gradual smooth boundary.

Ckg—63 to 80 inches; gray (5Y 6/1) silty clay; massive with vertical cleavage planes; firm; few distinct shiny light olive gray (5Y 6/2) slickensides; few prominent very dark gray (2.5Y 3/1) clay films lining channels; common medium distinct light gray (N 6/0) iron depletions along root channels and few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (N 2.5/0) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation with sharp boundaries; few fine irregular white (10YR 8/1) masses of carbonate accumulation and few medium irregular light gray (10YR 7/2) carbonate concretions with clear white (10YR 8/1) boundaries; slightly effervescent; slightly alkaline.

MLRA Series Range in Characteristics

Depth to the base of the cambic horizon: Typically 36 to 48 inches, but ranges to about 60 inches

Depth to carbonates: In the C horizon, where present

Particle-size control section: Averages 35 to 55 percent clay and 1 to 12 percent sand

Reaction: Moderately acid to neutral in the A and B horizons, and neutral to moderately alkaline in the C horizon

Typically, the Zipp soils in the Kaskaskia River valley are more acid in the upper part of the B horizon than stated for the Zipp series.

A horizon:
- Hue—10YR
- Value—3 or 4
- Chroma—1 or 2
- Texture—silty clay loam or silty clay, and less commonly silt loam

Bg horizon:
- Hue—10YR, 2.5Y, 5Y, or neutral
- Value—4 to 6
- Chroma—0 or 1
- Texture—silty clay loam or silty clay

Cg horizon:
- Hue—10YR, 2.5Y or 5Y, or neutral
- Value—4 to 7
- Chroma—0 to 2
- Texture—silty clay or silty clay loam that can be stratified, and includes thin strata of silt loam

8524L—Zipp silty clay, 0 to 2 percent slopes, occasionally flooded, long duration

Setting

Landform: Lake Plain
Position on Landform: Broad Flat

Soil Properties and Qualities

Drainage: Very poorly drained
Dominant parent material: Lacustrine deposits
Flooding frequency: Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

Composition

Zipp and similar soils: 85 percent
Dissimilar soils: 15 percent

Similar soils:
* Soils that contain less clay in the surface horizon
* Soils that have a darker surface horizon
* Soils that contain carbonates in the subsoil

Dissimilar soils:
* Areas of somewhat poorly drained soils

Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

* "Agronomy" section
* "Forestland Management and Productivity" section
* "Wildlife Habitat" section
* "Engineering" section
* "Soil Properties" section

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Glossary

Ablation till. Loose, permeable till deposited during the final downwasting sof glacial ice. Lenses of crudely sorted sand and gravel are common.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at tis junction with its main stream.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Animal-unit-month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	More than 12

Backslope. The geomorphic component that forms the steepest inclined surface and principalelement of many hill slopes. Backslopes in profile are commonly steep and linear and descend to a footslope. In terms of gradational process, backslopes are erosional forms produced mainly by mass wasting and running water.

Basal till. Compact glacial till deposited beneath the ice.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation-exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bluff. A high bank or bold headland, with a broad, precipitous, sometimes rounded cliff face overlooking a plain or body of water, especially on the outside of a stream meander.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Chiseling. Tillage with an implement having one or more soil-penetrating points that loosen the subsoil and bring clods to the surface. A form of emergency tillage to control soil blowing.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clayey soil. Silty clay, sandy clay, or clay.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Closed depression. A low area completely surrounded by higher ground and having no natural outlet.

Coarse fragments. Mineral or rock particles larger than 2 millimeters in diameter.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Colluvium. Soil material, rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. Any tillage and planting system in which a cover of crop residue is maintained on at least 30 percent of the soil surface after planting in order to reduce the hazard of water erosion; in areas where soil blowing is the primary concern, a system that maintains a cover of at least 1,000 pounds of flat residue of small grain or the equivalent during the critical erosion period.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are:

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—Readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—Adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Contour stripcropping (or contour farming). Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coprogenous earth (sedimentary peat). Fecal material deposited in water by aquatic organisms.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deep soil. A soil that is 40 to 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Deferred grazing. Postponing grazing or arresting grazing for a prescribed period.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—These soils have very high and high hydraulic conductivity and a low water-holding capacity. They are not suited to crop production unless irrigated.

Somewhat excessively drained.—These soils have high hydraulic conductivity and a low water-holding capacity. Without irrigation, only a narrow range of crops can be grown and yields are low.

Well drained.—These soils have an intermediate water-holding capacity. They retain optimum amounts of moisture, but they are not wet close enough to the surface or long enough during the growing season to adversely affect yields.

Moderately well drained.—These soils are wet close enough to the surface or long enough that planting or harvesting operations or yields of some field crops are adversely affected unless a drainage system is installed. Moderately well drained soils commonly have a layer with low hydraulic conductivity, a wet layer relatively high in the profile, additions of water by seepage, or some combination of these.

Somewhat poorly drained.—These soils are wet close enough to the surface or long enough that planting or harvesting operations or crop growth is markedly restricted unless a drainage system is installed. Somewhat poorly drained soils commonly have a layer with low hydraulic conductivity, a wet layer high in the profile, additions of water through seepage, or a combination of these.

Poorly drained.—These soils commonly are so wet at or near the surface during a considerable part of the year that field crops cannot be grown under natural conditions. Poorly drained conditions are caused by a saturated zone, a layer with low hydraulic conductivity, seepage, or a combination of these.

Very poorly drained.—These soils are wet to the surface most of the time. The wetness prevents the growth of important crops (except rice) unless a drainage system is installed.

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. An area of ground at a lower elevation than the surrounding ground and in which water collects and is drained to a closed depression or lake or to a drainageway at a lower elevation. A drainageway may or may not have distinctly incised channels at its upper reaches or throughout its course.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, for example, fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. The term is more often applied to cliffs resulting from differential erosion.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity.*

Fine textured soil. Sandy clay, silty clay, or clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flat. The low-lying, exposed, flat land of a lake delta or of a lake bottom.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to inundation under flood-stage conditions unless protected artificially. It is usually a constructional landform built of sediment deposited during overflow and lateral migration of the stream.

Footslope. The geomorphic component that forms the inner, gently inclined surface at the base of a hill slope. The surface profile is dominantly concave. In terms of gradational processes, a footslope is a transition zone between an upslope site of erosion (backslope) and a downslope site of deposition (toeslope).

Forb. Any herbaceous plant not a grass or a sedge.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Glacial drift (geology). Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash (geology). Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Glacial till (geology). Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Glaciated uplands. Land areas that were previously covered by continental or alpine glaciers and that are at a higher elevation than the flood plain.

Glaciofluvial deposits (geology). Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Glaciolacustrine deposits. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage. A gullied map unit is one that has numerous gullies.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the number 2 precedes the letter C.

Cr horizon.—Sedimentary beds of consolidated sandstone and semiconsolidated and consolidated shale. Generally, roots can penetrate this horizon only along fracture planes.

R layer.—Hard, consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon but can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	Very low
0.2 to 0.4	Low
0.4 to 0.75	Moderately low
0.75 to 1.25	Moderate
1.25 to 1.75	Moderately high
1.75 to 2.5	High
More than 2.5	Very high

Interfluve. A landform composed of the relatively undissected upland or ridge between two adjacent ralleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Kame. A moundlike hill of glacial drift, composed chiefly of stratified sand and gravel.

Kame terrace. A terracelike ridge consisting of stratified sand and gravel that were deposited by a meltwater stream flowing between a melting glacier and a higher valley wall or lateral moraine and that remained after the disappearance of the ice. It is commonly pitted with kettles and has an irregular ice-contact slope.

Lacustrine deposit (geology). Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake plain. A surface marking the floor of an extinct lake, filled in by well sorted, stratified sediments.

Lake terrace. A narrow shelf, partly cut and partly built, produced along a lake shore in front of a scarp line of low cliffs and later exposed when the water level falls.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loamy soil. Coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, or silty clay loam.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. The soil is not strong enough to support loads.

Major land resource areas (MLRA). Major land resource areas (MLRA's) are geographically associated land resource areas. These are designated by Arabic numbers and identified by a descriptive geographic name.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonates, gypsum or other soluble salts, iron oxide, and manganese oxide.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately deep soil. A soil that is 20 to 40 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Moraine. An accumulation of glacial drift in a topographic landform of its own, resulting chiefly from the direct action of glacial ice. Some types are lateral, recessional, and terminal.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent.* The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natural levee. A long, broad low ridge or embankment of sand and coarse silt, built by a stream on its flood plain and along both sides of its channel, especially in time of flood when water overflowing the normal banks is forced to deposit the coarsest part of its load. It has a gentle slope away from the river and toward the surrounding floodplain, and its highest elevation is closest to the river bank.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Outwash plain. An extensive area of glaciofluvial material that was deposited by meltwater streams.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil, adversely affecting the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	Less than 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	More than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of

moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. The water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid permeability or an impermeable layer near the surface, the soil may not adequately filter effluent from a waste disposal system.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity. expressed as pH values, are:

Ultra acid	Below 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha, alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Ridge. A long, narrow elevation of the land surface, usually sharp crested with steep sides and forming an extended upland between valleys.

Riser. The vertical or steeply sloping surface, commonly one of a series, of natural steplike landforms, as those of a glacial stairway or of successive stream terraces.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop. Exposures of bare bedrock other than lava flows and rock-lined pits.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandy soil. Sand or loamy sand.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Shallow soil. A soil that is 10 to 20 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder slope. The uppermost inclined surface at the top of a hillside. It is the transition zone from the backslope to the summit of a hill or mountain. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side Slope. The slope bounding a drainageway and lying between the drainageway and the adjacent interfluve. It is generally linear along the slope width and overland flow is parallel down the slope.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant or dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey the following simple slope classes are recognized:

Nearly level	0 to 2 percent
Gently sloping	2 to 5 percent
Moderately sloping	5 to 10 percent
Strongly sloping	10 to 18 percent
Steep	18 to 35 percent
Very steep	35 to 70 percent

The following complex slope classes are recognized:

Undulating	1 to 8 percent
Rolling	4 to 16 percent

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil quality. Soil quality is the fitness of a specific kind of soil to function within its surroundings, support plant and animal productivity, maintain or enhance water and air quality, and support human health and habitation.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	Less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 6 to 15 inches (15 to 38 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stream channel. The hollow bed where a natural stream of surface water flows or may flow; the deepest or central part of the bed, formed by the main current and covered more or less continuously by water.

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel. It originally formed near the level of the stream and is the dissected remnants of an abandoned flood plain, streambed, or valley floor that were produced during a former stage of erosion or deposition.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to soil blowing and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are: *platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter or loosen a layer that is restrictive to roots.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Summit. A general term for the top, or highest level, of an upland feature, such as a hill or mountain. It commonly refers to a higher area that has a gentle slope and is flanked by steeper slopes.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terminal moraine. A belt of thick glacial drift that generally marks the termination of important glacial advances. It commonly is a massive arcuate ridge or complex of ridges underlain by till and other types of drift.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material too thin for the specified use.

Till plain. An extensive nearly level to gently rolling or moderately sloping area that is underlain by or consists of till and that has a slope of 0 to 8 percent.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The outermost inclined surface at the base of a hill. Toeslopes are commonly gentle and linear in profile.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Tread. The flat or gently sloping surface of natural step-like landforms, commonly one of a series, such as successive stream terraces.

Understory. Any plants in a forest community that grow to a height of less than 5 feet.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Urban land. Areas covered by buildings, dwellings, roads, streets, parking lots, and lawns and gardens.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Very deep soil. A soil that is more than 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Very shallow soil. A soil that is less than 10 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The action of uprooting and tipping over trees by the wind.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1961-90 at Belleville, Illinois)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 yrs in 10 will have-- Maximum temperature higher than--	2 yrs in 10 will have-- Minimum temperature lower than--	Average number of growing degree days*	Average	2 yrs in 10 will have-- Less than--	2 yrs in 10 will have-- More than--	Average number of days with 0.1 inch or more	Average total snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January---	38.8	20.0	29.4	69	-14	5	1.86	0.61	2.89	3	6.0
February--	43.9	24.2	34.1	72	-6	11	2.18	1.01	3.19	3	4.1
March-----	55.9	34.4	45.1	82	9	75	3.51	2.19	4.70	6	2.6
April-----	67.7	44.1	55.9	88	24	224	3.39	1.98	4.64	6	0.8
May-------	76.8	52.8	64.8	91	32	455	4.04	2.20	5.67	6	0.0
June------	85.3	61.6	73.4	96	44	700	3.72	2.12	5.15	6	0.0
July------	89.2	65.4	77.3	1 00	49	834	3.45	1.60	5.04	5	0.0
August----	87.0	62.7	74.8	99	46	759	3.37	1.58	4.92	4	0.0
September-	80.9	55.8	68.4	96	35	546	3.25	1.41	4.82	4	0.0
October---	70.2	44.3	57.2	89	24	253	2.80	1.27	4.12	5	0.0
November--	56.1	35.6	45.8	78	13	70	3.44	1.25	5.26	5	0.6
December--	42.9	25.4	34.1	69	3	12	3.10	1.23	4.68	4	3.3
Yearly :											
Average-	66.2	43.9	55.0	---	---	---	---	---	---	---	---
Extreme-	108	27	---	1 02	14	---	---	---	---	---	---
Total---	---	---	---	---	---	3,945	38.13	32.25	43.77	57	17.4

*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minumum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50.0 degrees F).

Table 2.–Freeze Dates in Spring and Fall

(Recorded in the period 1961-90 at Belleville, Illinois)

Probability	Temperature 24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	April 7	April 18	May 1
2 year in 10 later than--	April 1	April 13	April 26
5 year in 10 later than--	March 21	April 3	April 16
First freezing temperature in fall:			
1 yr in 10 earlier than--	October 21	October 5	September 26
2 yr in 10 earlier than--	October 27	October 11	October 2
5 yr in 10 earlier than--	November 7	October 22	October 14

Table 3.–Growing Season

(Recorded in the period 1961-90 at Belleville, Illinois)

Probability	Daily minimum temperature during growing season: Number of days higher than 24 °F	Number of days higher than 28 °F	Number of days higher than 32 °F
9 years in 10	203	176	156
8 years in 10	212	185	164
5 years in 10	230	201	180
2 years in 10	247	218	196
1 year in 10	256	227	204

Table 4.—Classification of the Soils

(An asterisk in the first column indicates that some soil map units are taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series)

Soil name	Family or higher taxonomic class
Alvin	Coarse-loamy, mixed, superactive, mesic Typic Hapludalfs
Atlas	Fine, smectitic, mesic Aeric Chromic Vertic Epiaqualfs
Aviston	Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls
Bartelso	Fine, mixed, superactive, mesic Aquertic Argiudolls
Beaucoup	Fine-silty, mixed, superactive, mesic Fluvaquentic Endoaquolls
Bethalto	Fine-silty, mixed, superactive, mesic Udollic Endoaqualfs
Biddle	Fine, smectitic, mesic Aquertic Argiudolls
Birds	Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents
Blair	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs
Blake	Fine-silty, mixed, superactive, calcareous, mesic Aquic Udifluvents
Bold	Coarse-silty, mixed, superactive, calcareous, mesic Typic Udorthents
Bunkum	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs
Caseyville	Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs
Coffeen	Coarse-silty, mixed, superactive, mesic Fluvaquentic Hapludolls
Colp	Fine, smectitic, mesic Aquertic Chromic Hapludalfs
Coulterville	Fine-silty, mixed, superactive, mesic Aeric Epiaqualfs
Cowden	Fine, smectitic, mesic Vertic Albaqualfs
Darmstadt	Fine-silty, mixed, superactive, mesic Albic Natraqualfs
Darwin	Fine, smectitic, mesic Fluvaquentic Vertic Endoaquolls
Downsouth	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Drury	Fine-silty, mixed, superactive, mesic Dystric Eutrochrepts
Dupo	Coarse-silty over clayey, mixed over smectitic, superactive, nonacid, mesic Aquic Udifluvents
Edwardsville	Fine-silty, mixed, superactive, mesic Aquic Argiudolls
Floraville	Fine, smectitic, mesic Chromic Vertic Albaqualfs
Fluvaquents, loamy	Fluvaquents, loamy, mixed, superactive, nonacid, mesic
Fluvaquents	Fluvaquents, loamy, mixed, superactive, nonacid, mesic
Fosterburg	Fine, smectitic, mesic Vertic Argiaquolls
Fults	Fine, smectitic, mesic Vertic Endoaquolls
Geff	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs
Gorham	Fine-silty, mixed, superactive, mesic Fluvaquentic Endoaquolls
Grantfork	Fine-loamy, mixed, superactive, mesic Aeric Epiaqualfs
Haynie	Coarse-silty, mixed, superactive, calcareous, mesic Mollic Udifluvents
Herrick	Fine, smectitic, mesic Aquertic Argiudolls
Hickory	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Homen	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Hurst	Fine, smectitic, mesic Aeric Chromic Vertic Epiaqualfs
Lakaskia	Fine, mixed, superactive, mesic Vertic Argiaquolls
Landes	Coarse-loamy, mixed, superactive, mesic Fluventic Hapludolls
Lenzburg	Fine-loamy, mixed, active, calcareous, mesic Alfic Udarents
Littleton	Fine-silty, mixed, superactive, mesic Aquic Cumulic Hapludolls
Marine	Fine, smectitic, mesic Aeric Vertic Albaqualfs
Mascoutah	Fine-silty, mixed, superactive, mesic Typic Endoaquolls
McFain	Clayey over loamy, smectitic over mixed, superactive, mesic Fluvaquentic Endoaquolls
Meadowbank	Fine-silty, mixed, superactive, mesic Typic Argiudolls
Menfro	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Millstadt	Fine-silty, mixed, superactive, mesic Aeric Epiaqualfs
Morristown	Loamy-skeletal, mixed, active, calcareous, mesic Typic Udorthents
Nameoki	Fine, smectitic, mesic Aquertic Hapludolls
Negley	Fine-loamy, mixed, active, mesic Typic Paleudalfs
Oconee	Fine, smectitic, mesic Udollic Epiaqualfs
Okaw	Fine, smectitic, mesic Chromic Vertic Albaqualfs
Orion	Coarse-silty, mixed, superactive, nonacid, mesic Aquic Udifluvents
Orthents, acid substratum	Fine-silty, mixed, active, nonacid, mesic Aquic Udorthents
Orthents, loamy	Fine-loamy, mixed, active, nonacid, mesic Typic Udorthents
Orthents, silty	Fine-silty, mixed, active, nonacid, mesic Aquic Udorthents
Orthents	Fine-loamy, mixed, active, nonacid, mesic Aquic Udorthents
Otter	Fine-silty, mixed, superactive, mesic Cumulic Endoaquolls
Petrolia	Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents
Piasa	Fine, smectitic, mesic Vertic Natraqualfs
Pierron	Fine, smectitic, mesic Chromic Vertic Albaqualfs

Table 4.–Classification of the Soils–continued

Soil name	Family or higher taxonomic class
Racoon	Fine-silty, mixed, superactive, mesic Typic Endoaqualfs
Redbud	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Ridgway	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Rocher	Coarse-loamy, mixed, superactive, calcareous, mesic Typic Udifluvents
Ruma	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Shaffton	Fine-loamy, mixed, superactive, mesic Fluvaquentic Hapludolls
*Swanwick	Fine-silty, mixed, active, nonacid, mesic Alfic Udarents
Sylvan	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Tice	Fine-silty, mixed, superactive, mesic Fluvaquentic Hapludolls
Typic Hapludalfs	Typic Hapludalfs
Ursa	Fine, smectitic, mesic Chromic Vertic Hapludalfs
Virden	Fine, smectitic, mesic Vertic Argiaquolls
Wabash	Fine, smectitic, mesic Cumulic Vertic Endoaquolls
Wagner	Fine, smectitic, mesic Vertic Albaqualfs
Wakeland	Coarse-silty, mixed, superactive, nonacid, mesic Aeric Fluvaquents
Wakenda	Fine-silty, mixed, superactive, mesic Typic Argiudolls
Wilbur	Coarse-silty, mixed, superactive, mesic Fluvaquentic Eutrochrepts
Winfield	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Worthen	Fine-silty, mixed, superactive, mesic Cumulic Hapludolls
Zipp	Fine, mixed, active, nonacid, mesic Vertic Endoaquepts

Table 5.—Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
5C2	Blair silt loam, 5 to 10 percent slopes, eroded	216	*
5C3	Blair silt loam, 5 to 10 percent slopes, severely eroded	303	*
5D3	Blair silt loam, 10 to 18 percent slopes, severely eroded	315	*
8F2	Hickory silt loam, 18 to 35 percent slopes, eroded	636	0.1
31A	Pierron silt loam, 0 to 2 percent slopes	3,266	0.8
37A	Worthen silt loam, 0 to 2 percent slopes	456	0.1
37B	Worthen silt loam, 2 to 5 percent slopes	414	*
46A	Herrick silt loam, 0 to 2 percent slopes	14,629	3.4
50A	Virden silt loam, 0 to 2 percent slopes	2,049	0.5
75B	Drury silt loam, 2 to 5 percent slopes	488	0.1
79B	Menfro silt loam, 2 to 5 percent slopes	8,800	2.0
79C2	Menfro silt loam, 5 to 10 percent slopes, eroded	8,015	1.9
79C3	Menfro silt clay loam, 5 to 10 percent slopes, severely eroded	3,839	0.9
79D2	Menfro silt loam, 10 to 18 percent slopes, eroded	3,333	0.8
79D3	Menfro silty clay loam, 10 to 18 percent slopes, severely eroded	5,100	1.2
79F	Menfro silt loam, 18 to 35 percent slopes	4,901	1.1
79F3	Menfro silty clay loam, 18 to 35 percent slopes, severely eroded	3,315	0.8
79G	Menfro silt loam, 35 to 60 percent slopes	1,896	0.4
81A	Littleton silt loam, 0 to 2 percent slopes	376	*
90A	Bethalto silt loam, 0 to 2 percent slopes	3,464	0.8
109A	Racoon silt loam, 0 to 2 percent slopes	245	*
112A	Cowden silt loam, 0 to 2 percent slopes	2,109	0.5
113A	Oconee silt loam, 0 to 2 percent slopes	3,840	0.9
113B	Oconee silt loam, 2 to 5 percent slopes	2,128	0.5
267A	Caseyville silt loam, 0 to 2 percent slopes	3,705	0.9
267B	Caseyville silt loam, 2 to 5 percent slopes	830	0.2
283B	Downsouth silt loam, 2 to 5 percent slopes	1,730	0.4
283C2	Downsouth silt loam, 5 to 10 percent slopes, eroded	1,006	0.2
384A	Edwardsville silt loam, 0 to 2 percent slopes	7,852	1.8
384B	Edwardsville silt loam, 2 to 5 percent slopes	2,689	0.6
385A	Mascoutah silty clay loam, 0 to 2 percent slopes	3,794	0.9
423A	Millstadt silt loam, 0 to 2 percent slopes	5,606	1.3
423B	Millstadt silt loam, 2 to 5 percent slopes	1,856	0.4
433A	Floraville silt loam, 0 to 2 percent slopes	1,897	0.4
437B	Redbud silt loam, 2 to 5 percent slopes	1,542	0.4
437C2	Redbud silt loam, 5 to 10 percent slopes, eroded	2,262	0.5
438B	Aviston silt loam, 2 to 5 percent slopes	4,371	1.0
438C2	Aviston silt loam, 5 to 10 percent slopes, eroded	1,149	0.3
441B	Wakenda silt loam, 2 to 5 percent slopes	2,015	0.5
441C2	Wakenda silt loam, 5 to 10 percent slopes, eroded	1,957	0.5
466A	Bartelso silt loam, 0 to 2 percent slopes	3,183	0.7
468A	Lakaskia silt loam, 0 to 2 percent slopes	3,140	0.7
477B	Winfield silt loam, 2 to 5 percent slopes	11,061	2.6
477B2	Winfield silt loam, 2 to 5 percent slopes, eroded	612	0.1
477C3	Winfield silty clay loam, 5 to 10 percent slopes, severely eroded	858	0.2
477C2	Winfield silt loam, 5 to 10 percent slopes, eroded	4,515	1.0
491B2	Ruma silty clay loam, 2 to 5 percent slopes, eroded	1,249	0.3
491C3	Ruma silty clay loam, 5 to 10 percent slopes, severely eroded	1,710	0.4
491D3	Ruma silty clay loam, 10 to 18 percent slopes, severely eroded	2,297	0.5
515C3	Bunkum silty clay loam, 5 to 10 percent slopes, severely eroded	1,658	0.4
515C2	Bunkum silt loam, 5 to 10 percent slopes, eroded	361	*
515D3	Bunkum silty clay loam, 10 to 18 percent slopes, severely eroded	4,219	1.0
517A	Marine silt loam, 0 to 2 percent slopes	11,915	2.8
517B	Marine silt loam, 2 to 5 percent slopes	10,316	2.4
533	Urban land	10,208	2.4
536	Dumps	935	0.2
582B	Homen silt loam, 2 to 5 percent slopes	11,724	2.7
582B2	Homen silt loam, 2 to 5 percent slopes, eroded	1,665	0.4
582C2	Homen silt loam, 5 to 10 percent slopes, eroded	4,669	1.1
585F2	Negley loam, 18 to 35 percent slopes, eroded	973	0.2
801B	Orthents, silty, undulating	514	0.1
801D	Orthents, silty, steep	1,041	0.2
802B	Orthents, loamy, undulating	1,240	0.3
802D	Orthents, loamy, steep	2,465	0.6
821G	Morristown very stony silty clay loam, 35 to 70 percent slopes	3,623	0.8
824B	Swanwick silty clay loam, 1 to 5 percent slopes	462	0.1
825B	Lenzburg silty clay loam, acid substratum, 1 to 7 percent slopes	728	0.2
826D	Orthents, silty, acid substratum, rolling	323	*
864	Pits, quarries	673	0.2
865	Pits, gravel	73	*
866	Dumps, slurry	304	*
871B	Lenzburg gravelly silty clay loam, 1 to 7 percent slopes, stony	1,093	0.3

Table 5.—Acreage and Proportionate Extent of the Soils—continued

Map symbol	Soil name	Acres	Percent
871D	Lenzburg gravelly silty clay loam, 7 to 18 percent slopes, stony	2,304	0.5
871G	Lenzburg gravelly silty clay loam, 18 to 70 percent slopes, stony	4,009	0.9
878C3	Coulterville-Grantfork silty clay loams, 5 to 10 percent slopes, severely eroded	9,065	2.1
880B2	Coulterville-Darmstadt silt loams, 2 to 5 percent slopes, eroded	7,781	1.8
882A	Oconee-Darmstadt-Coulterville silt loams, 0 to 2 percent slopes	6,552	1.5
882B	Oconee-Coulterville-Darmstadt silt loams, 2 to 5 percent slopes	4,436	1.0
884C3	Bunkum-Coulterville silty clay loams, 5 to 10 percent slopes, severely eroded	11,988	2.8
885A	Virden-Fosterburg silt loams, 0 to 2 percent slopes	2,063	0.5
886F3	Ruma-Ursa silty clay loams, 18 to 35 percent slopes, severely eroded	6,433	1.5
894A	Herrick-Biddle-Piasa silt loams, 0 to 2 percent slopes	5,577	1.3
897D3	Bunkum-Atlas silty clay loams, 10 to 18 percent slopes, severely eroded	7,036	1.6
906C3	Redbud-Hurst silty clay loams, 5 to 10 percent slopes, severely eroded	945	0.2
907D3	Redbud-Colp silty clay loams, 10 to 18 percent slopes, severely eroded	1,047	0.2
962F2	Sylvan-Bold silt loams, 18 to 35 percent slopes, eroded	4,825	1.1
962G	Sylvan-Bold silt loams, 35 to 60 percent slopes	1,941	0.4
993A	Cowden-Piasa silt loams, 0 to 2 percent slopes	12,651	2.9
1071A	Darwin silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded	1,632	0.4
1248A	McFain silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded	824	0.2
1288A	Petrolia silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded	2,337	0.5
2071L	Darwin-Urban land complex, 0 to 2 percent slopes, occasionally flooded, long duration	2,317	0.5
2079D	Menfro-Urban land complex, 8 to 15 percent slopes	744	0.2
2079E	Menfro-Urban land complex, 15 to 25 percent slopes	500	0.1
2183A	Shaffton-Urban land complex, 0 to 2 percent slopes, occasionally flooded	6,329	1.5
2384B	Edwardsville-Urban land complex, 1 to 4 percent slopes	2,842	0.7
2477B	Winfield-Urban land complex, 2 to 8 percent slopes	5,079	1.2
3038B	Rocher loam, 2 to 5 percent slopes, frequently flooded	226	*
3070L	Beaucoup silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration	926	0.2
3076A	Otter silt loam, 0 to 2 percent slopes, frequently flooded	1,115	0.3
3083L	Wabash silty clay, 0 to 2 percent slopes, frequently flooded, long duration	1,506	0.3
3180A	Dupo silt loam, 0 to 2 percent slopes, frequently flooded	1,416	0.3
3288L	Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration	7,314	1.7
3333A	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded	31,924	7.4
3334L	Birds silt loam, 0 to 2 percent slopes, frequently flooded, long duration	3,865	0.9
3336A	Wilbur silt loam, 0 to 2 percent slopes, frequently flooded	736	0.2
3391A	Blake silty clay loam, 0 to 2 percent slopes, frequently flooded	558	0.1
3394A	Haynie silt loam, 0 to 2 percent slopes, frequently flooded	492	0.1
3394B	Haynie silt loam, 2 to 5 percent slopes, frequently flooded	107	*
3415A	Orion silt loam, 0 to 2 percent slopes, frequently flooded	691	0.2
3428A	Coffeen silt loam, 0 to 2 percent slopes, frequently flooded	42	*
3847L	Fluvaquents-Orthents complex, frequently flooded, long duration	1,070	0.2
5079D	Menfro silt loam, karst, 12 to 25 percent slopes, severely eroded	2,614	0.6
5079G	Menfro silt loam, karst, 25 to 60 percent slopes	2,529	0.6
5079C	Menfro silt loam, karst, 4 to 12 percent slopes, severely eroded	790	0.2
8026A	Wagner silt loam, 0 to 2 percent slopes, occasionally flooded	428	*
8070A	Beaucoup silty clay loam, 0 to 2 percent slopes, occasionally flooded	225	*
8071L	Darwin silty clay, 0 to 2 percent slopes, occasionally flooded, long duration	5,659	1.3
8084A	Okaw silt loam, 0 to 2 percent slopes, occasionally flooded	4,629	1.1
8109A	Racoon silt loam, 0 to 2 percent slopes, occasionally flooded	387	*
8122C	Colp silty clay loam, 5 to 10 percent slopes, severely eroded, occasionally flooded	344	*
8122D	Colp silty clay loam, 10 to 18 percent slopes, severely eroded, occasionally flooded	2,068	0.5
8131B	Alvin fine sandy loam, 2 to 5 percent slopes, occasionally flooded	549	0.1
8162A	Gorham silty clay loam, 0 to 2 percent slopes, occasionally flooded	711	0.2
8180A	Dupo silt loam, 0 to 2 percent slopes, occasionally flooded	1,946	0.5
8183A	Shaffton clay loam, 0 to 2 percent slopes, occasionally flooded	3,296	0.8
8284A	Tice silty clay loam, 0 to 2 percent slopes, occasionally flooded	39	*
8304B	Landes very fine sandy loam, 2 to 5 percent slopes, occasionally flooded	2,046	0.5
8338B	Hurst silt loam, 2 to 5 percent slopes, eroded, occasionally flooded	1,108	0.3
8338C	Hurst silty clay loam, 5 to 10 percent slopes, eroded, occasionally flooded	1,626	0.4
8338A	Hurst silt loam, 0 to 2 percent slopes, occasionally flooded	800	0.2
8394A	Haynie silt loam, 0 to 2 percent slopes, occasionally flooded	218	*
8432A	Geff silt loam, 0 to 2 percent slopes, occasionally flooded	572	0.1
8434B	Ridgway silt loam, 2 to 5 percent slopes, occasionally flooded	436	0.1
8436B	Meadowbank silt loam, 2 to 5 percent slopes, occasionally flooded	387	*
8489A	Hurst silt loam, sandy substratum, 0 to 2 percent slopes, occasionally flooded	559	0.1
8524L	Zipp silty clay, 0 to 2 percent slopes, occasionally flooded, long duration	1,065	0.2
8591A	Fults silty clay, 0 to 2 percent slopes, occasionally flooded	2,140	0.5
8592A	Nameoki silty clay, 0 to 2 percent slopes, occasionally flooded	964	0.2
8646A	Fluvaquents, Loamy, 0 to 2 percent slopes, occasionally flooded	1,620	0.4
8812F	Typic Hapludalfs, 18 to 35 percent slopes, occasionally flooded	12	*
	Water	10,123	2.3
	Total	431,330	100

* Less than 0.1 percent.

Accessibility Statement

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United States
Department of
Agriculture

Natural
Resources
Conservation
Service

In cooperation with
Illinois Agricultural Experiment Station

Soil Survey of St. Clair County, Illinois

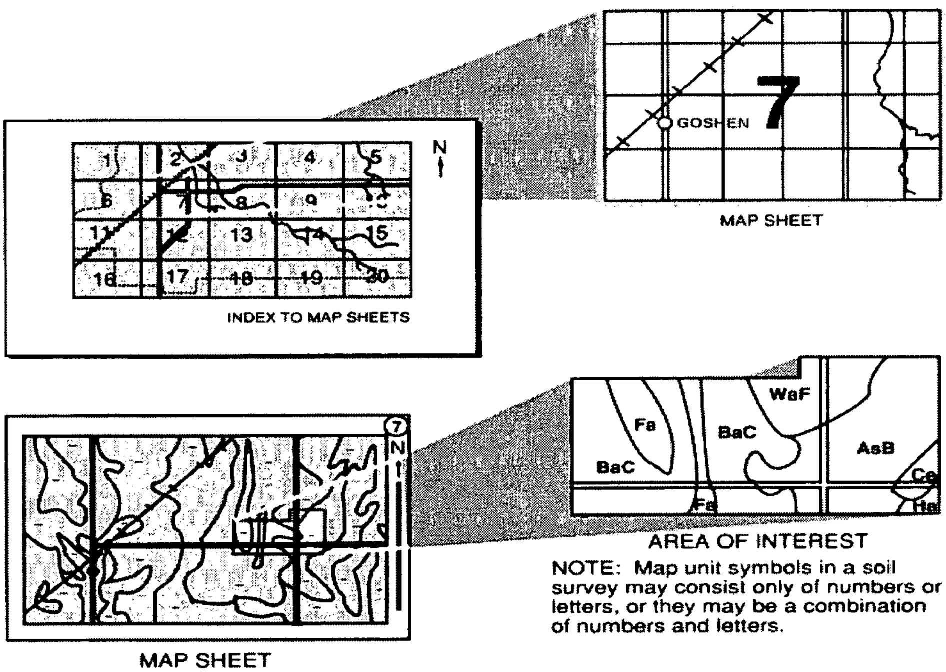
Part II

How To Use This Soil Survey

This survey is divided into three parts. Part I includes general information about the survey area, descriptions of the detailed soil map units and soil series in the area, and a description of how the soils formed. Part II describes the use and management of the soils and the major soil properties. This part may be updated as further information about soil management becomes available. Part III includes the maps.

Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.



To find information about your area of interest, locate that area on the **Index to Map Sheets**, which precedes the soil maps. Note the number of the map sheet, and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Index to Map Units**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Summary of Tables** shows which table has data on a specific land use for each detailed soil map unit. See Contents for sections of this publication that may address your specific needs.

The **Summary of Tables** shows which table has data on a specific land use for each detailed soil map unit. See **Contents** for sections of this publication that may address your specific needs.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1995. Soil names and descriptions were approved in 1997. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1995. This survey was made cooperatively by the Natural Resources Conservation Service and the Illinois Agricultural Experiment Station. It is part of the technical assistance furnished to the St. Clair County Soil and Water Conservation District. Funding was provided by the St. Clair County Board and the Illinois Department of Agriculture.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

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Cover: A series of terraces conserve the soil on a hillside in St. Clair County.

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Foreword

This soil survey contains information that can be used in land-planning programs in St. Clair County. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

William J. Gradle
State Conservationist
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Soil Survey of St. Clair County, Illinois

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Interpretive ratings help engineers, planners, and others understand how soil properties influence important nonagricultural uses, such as building site development and construction materials. The ratings indicate the most restrictive soil features affecting the suitability of the soils for these uses.

Soils are rated in their natural state. No unusual modification of the soil site or material is made other than that which is considered normal practice for the rated use. Even though soils may have limitations, it is important to remember that engineers and others can modify soil features or can design or adjust the plans for a structure to compensate for most of the limitations. Most of these practices, however, are costly. The final decision in selecting a site for a particular use generally involves weighing the costs of site preparation and maintenance.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health and highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

The classification and extent of the soils in this survey area are shown in table 4—"Classification of the Soils" and table 5—"Acreage and Proportionate Extent of the Soils".

Agronomy

General management needed for crops and for hay and pasture is suggested in this section. The system of land capability classification used by the Natural Resources Conservation Service is explained, and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider obtaining specific information from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

The soils in St. Clair County have good potential for continued crop production, especially if the latest crop production technology is applied. This soil survey can be used as a guide for applying the latest crop production technologies.

The demand for food and fiber has increased in recent years. As a result, some land of marginal quality has been used for crops. Much of this land is more susceptible to erosion than the more productive land. Also, the number of residential tracts has increased throughout the county. These tracts commonly are in areas of prime farmland. If these trends continue, they could result in a significant decline in the quality and quantity of the land used for food and fiber.

The major soil management concerns affecting cropland in the county are water erosion, excessive permeability, surface crusting, poor tilth, wetness, ponding, restricted permeability, and droughtiness.

Soil erosion is a potential problem on approximately 49 percent of the cropland. Erosion can be a problem on soils that have slopes of more than 2 percent, such as Blair, Bunkum, Redbud, and Wakenda soils.

Loss of the surface layer is damaging for several reasons. Soil productivity is reduced as the surface soil is removed and part of the subsoil is incorporated into the plow layer. The subsoil is generally lower in plant nutrients, lower in organic matter, and higher in clay content compared to the surface soil. As organic matter decreases and clay content increases in the plow layer, soil tilth deteriorates resulting in soil crusting and reduced water intake. Soil erosion results in the sedimentation of streams, rivers, road ditches, and lakes. Sediment pollution reduces water quality for agricultural, municipal, and recreational uses and for fish and wildlife. Removing the sediment generally is expensive. Erosion control helps to minimize this pollution and improves water quality.

Erosion-control measures include both cultural and structural practices. The most widely used practice in the county is conservation tillage, such as mulch tillage and zero tillage. These systems can leave 30 to 90 percent of the surface covered with crop residue. Another cultural practice is a crop rotation that includes 1 or more years of close-growing grasses or legumes. If slopes are long and uniform, terraces and contour farming are also effective in controlling erosion.

Structural practices are needed in drainageways where concentrated runoff flows overland. Soil erosion can be controlled by establishing grassed waterways or constructing erosion- control structures.

Further information about erosion control measures suitable for each kind of soil is provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

Soils with excessive permeability, such as Alvin and Rocher soils, have the potential for groundwater contamination. These soils contain sandy deposits within a depth of 40 inches and are very rapidly permeable in the lower part of the profile.

There are several measures to limit the amount of deep leaching of nutrients and pesticides that occurs. To begin, applications of fertilizer should be based on soil tests. The local office of the Cooperative Extension Service can help in determining the kinds and proper amounts of nutrients needed. Chemicals should be selected based on their solubility in water, their ability to bind with the soil, and the rate of their breakdown in the soil. Splitting chemical applications, particularly nitrogen, is beneficial. This practice reduces the chance for excessive leaching from a one time application. Another measure is planting legumes in a crop rotation or as a cover crop. This adds nitrogen to the soil thereby reducing the amount of nitrogen needed in chemical applications. The practice of crop rotation is also effective in limiting the build-up of weed and insect populations. This in turn reduces the amount of herbicides and insecticides needed per application. Finally the use of small grain cover crops following fertilized corn crops can be effective in taking up some residual nitrogen from the soil.

Drainage systems have been installed in most areas of poorly drained and somewhat poorly drained

soils used as cropland in the county. As a result, these soils are adequately drained for the crops commonly grown. Measures that maintain the drainage system are needed. Poorly drained soils, such as Cowden, Fosterburg, Mascoutah, and Virden soils, have subsurface drainage. In addition, some areas of poorly drained soils require surface tile inlets or shallow surface ditches to remove excess water. In some areas, somewhat poorly drained soils are wet long enough that in some years productivity is reduced unless they are artificially drained. Somewhat poorly drained soils, such as Bethalto, Edwardsville, Marine, and Oconee soils, have subsurface drainage.

Soil tilth is an important factor influencing the germination of seeds, the amount of runoff, and the rate of water infiltration. Soils that have good tilth are granular and porous and have a high organic matter content.

Surface crusting can be a problem in areas of Marine and Pierron soils, which have a surface layer of silt loam that is low in organic matter content. Generally, the structure of these soils is weak, and a crust forms on the surface during periods of intense rainfall. This crust is hard when dry. It inhibits seedling emergence, reduces the infiltration rate, and increases runoff and erosion. Regular additions of crop residue, manure, and other organic material improve soil structure and minimize crusting.

Poor tilth is also a problem on soils that have a surface layer of silty clay loam or silty clay. If poorly drained soils, such as Beaucoup and Darwin soils are plowed when wet, their surface layers become cloddy. The cloddiness hinders the preparation of a good seedbed. Tilling in the fall and leaving the soil surface rough with moderate amounts of crop residue generally result in good tilth in the spring. A system of strip or ridge tillage may also work well on these soils.

Restricted permeability can increase a soil's susceptibility to erosion. As water movement slows within a soil that chance for runoff increases. Slowly permeable Colp soils have a higher soil erodibility potential than moderately permeable Aviston soils. The effect restricted permeability has on the erosion hazard can be controlled by applying a cropping system that leaves crop residue on the surface after planting, incorporating green manure crops or crop residue into the soil, and using conservation cropping systems.

Restricted permeability can also limit the effectiveness of drainage systems. Slowly permeable Cowden soils require a narrower tile spacing than moderately permeable Mascoutah soils in order to be as effective in lowering the water table.

A low available water capacity limits the productivity of some soils used for crops in the county. The physical composition of these soils, such as Landes and Rocher soils, limits the amount of available water necessary for optimum plant growth. The effects of droughtiness in these soils can be minimized by reducing the amount of runoff and increasing the soils' water-holding capacity. Using a conservation tillage system and returning crop residue and other organic material to the soil help to overcome droughtiness. Planting such crops as winter wheat can help to avoid the drought-prone season. Also, irrigation helps to overcome droughtiness.

Hay is a very important crop in the county for dairy and beef producers and for people who own small acreages and have horses for recreational purposes. The horse racing industry provides an additional market for hay. There are few permanent hay fields in the county, and a vast majority of producers rotate their hay seeding between 1 to several years of row crops, such as corn and soybeans.

Proper management is needed on hayland to prolong the life of desirable forage species, to maintain or improve the quality and quantity of forage, and to control erosion and reduce runoff. Hay may last as a vigorous crop for 4 or 5 years, depending on management and on the varieties seeded. Suitable hay plants include several legumes and cool-season grasses. Alfalfa is the most commonly grown legume for hay. It is often used in mixtures with smooth bromegrass and orchardgrass. Alfalfa is best suited to well drained soils, such as Menfro and Wakenda soils. Red clover is also grown for hay. Measures that maintain or improve fertility are needed. The amount of lime and fertilizer to be added should be based on the results of soil tests, the needs of the plants, and the expected level of yields. Seed varieties should be selected in accordance with the soil properties and the drainage conditions of the tract of land.

Cropland Limitations and Hazards

The crop management concerns affecting the use of the detailed soil map units in the survey area for crops are shown in table 6—"Main Cropland Limitations and Hazards." The main concerns in managing cropland are controlling water erosion, soil wetness, and ponding; reducing surface crusting; improving poor tilth; and limiting the effects of excessive and restricted permeabilities and low available water capacity.

Generally, a combination of several practices is needed to control *water erosion.* Conservation tillage, stripcropping, contour farming, conservation cropping systems, crop residue management, diversions, and grassed waterways help to prevent excessive soil loss.

Wetness is a limitation in some cropland areas, and *ponding* is a hazard. Drainage systems consist of subsurface tile drains, surface inlet tile, open drainage ditches, or a combination of these. Measures that maintain the drainage system are needed.

Practices that reduce *surface crusting* and improve *poor tilth* include incorporating green manure crops, manure, or crop residue into the soil and using a

system of conservation tillage. Surface cloddiness can be controlled by avoiding tillage when the soil is too wet.

Excessive permeability. This limitation can cause deep leaching of nutrients and pesticides. Selecting appropriate chemicals and using split application methods reduce the hazard of groundwater contamination.

Restricted permeability. This limitation can be overcome by incorporating green manure crops, manure, or crop residue into the soil; applying a system of conservation tillage; and using conservation cropping systems.

Conserving moisture is needed where the soils have a *low available water capacity.* It primarily involves reducing the evaporation and runoff rates and increasing the water intake rate. Applying conservation tillage and conservation cropping systems, farming on the contour, stripcropping, establishing field windbreaks, and leaving crop residue on the surface conserve moisture.

Some of the limitations and hazards shown in the table cannot be easily overcome. These are *flooding, depth to bedrock,* and *subsidence.*

Additional limitations and hazards are as follows:

Excessive lime—This limitation can be overcome by incorporating green manure crops, manure, or crop residue into the soil; applying a system of conservation tillage; and using conservation cropping systems. Also, crops may respond well to additions of phosphate fertilizer to soils that have a high content of lime.

Depth to bedrock—Rooting depth and available moisture may be limited by bedrock within a depth of 30 inches.

Flooding—Winter small grain crops can be damaged. Tilling and planting should be delayed in the spring until flooding is no longer a hazard.

Gravelly—This limitation in the surface layer causes rapid wear of tillage equipment. It cannot be easily overcome.

Subsidence—It occurs as a result of shrinkage from drying, consolidation because of the loss of groundwater, compaction from tillage, wind erosion, burning, and biochemical oxidation. Limiting the amount of drainage, avoiding excessive tillage and tillage when the soil is wet, and using a system of conservation tillage that leaves crop residue on the surface after planting help to control subsidence.

Wind erosion—Using a system of conservation tillage that leaves crop residue on the surface after planting and keeping the surface rough help to control this hazard.

Following is an explanation of the criteria used to determine the limitations or hazards.

Crusting—The average organic matter content in the surface layer is less than 2.5 percent, and the clay content is greater than 20 percent.

Depth to bedrock—Bedrock is within a depth of 30 inches.

Excessive lime—The calcium carbonate equivalent is 15 percent or more and meets the calcic horizon classification criteria.

Excessive permeability—The upper limit of the permeability range is 6 inches or more within the soil profile.

Excessive sodium—The sodium adsorption ratio (SAR) is more than 12 between the depths of 0 to 30 inches.

Flooding—The component of the map unit is occasionally flooded or frequently flooded.

Gravelly—The percent gravel in the surface layer is greater than 15 percent.

High pH—The pH is more than 8.4 between the depths of 0 and 40 inches.

Low available water capacity—The weighted average of the available water capacity between the depths of 0 and 40 inches is 0.1 inches or less.

Low pH—The pH is less than 4.5 between the depths of 0 to 40 inches.

Ponding—A water table is above the surface.

Poor tilth—The component of the map unit has 27 percent or more clay in the surface layer.

Restricted permeability—Permeability is less than 0.2 inches per hour between the depths of 0 and 40 inches.

Subsidence—The decrease in surface elevation is more than 0 inches.

Water erosion—The surface K factor multiplied by the slope is greater than 0.8, and the slope is 3 percent or more.

Wetness—The component of the map unit has a water table within a depth of 1.5 feet.

Wind erosion—The wind erodibility group (WEG) is 1 or 2.

Crop Yield Estimates

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 7—"Land Capability and Yields per Acre of Crops and Pasture." In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of each map unit also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents *(7, 10).* Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, protection from flooding, the proper planting and seeding rates, suitable high-yielding crop varieties, appropriate and timely tillage, control of

weeds, plant diseases and harmful insects, favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium and trace elements for each crop, effective use of crop residue, barnyard manure and green manure crops, and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The relative productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops

Pasture and Hayland Interpretations

Soils are assigned to pasture and hayland groups according to their suitability for the production of forage. The soils in each group are similar enough to be suited to the same species of grasses or legumes, have similar limitations and hazards, require similar management, and have similar productivity levels and other responses to management.

Under good management, proper grazing is essential for the production of high-quality forage, stand survival, and erosion control. Proper grazing helps plants to maintain sufficient and generally vigorous top growth during the growing season. Brush control is essential in many areas, and weed control generally is needed. Rotation grazing and renovation also are important management practices.

Yield estimates are often provided in animal unit months (AUM), or the amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about forage yields other than those shown in table 7—"Land Capability and Yields per Acre of Crops and Pasture."

Pasture Limitations and Hazards

Growing legumes, cool season grasses and warm season grasses that are suited to the soils and the climate of the area helps to maintain a productive stand of pasture.

The management concerns affecting the use of the soils in the survey area for pasture are shown in table 8—"Main Pasture Limitations and Hazards." The major management concerns affecting pasture are water erosion, soil fertility, low available water capacity, low pH, and equipment limitations.

Pastureland soils that are susceptible to water erosion meet the following criteria: The value of K factor multiplied by the slope is greater than 0.8 and the slope is equal to or greater than 3 percent.

Water erosion reduces the productivity of pastureland. It also results in onsite and offsite sedimentation, causes water pollution by sedimentation and increases the runoff of livestock manure and other added nutrients.

Measures that are effective in controlling water erosion include establishing or renovating stands of legumes and grasses. Controlling erosion during seedbed preparation is a major concern. If the soil is tilled for the reseeding of pasture or hay crops, planting winter cover crops, establishing grassed waterways, farming on the contour, and using a system of conservation tillage that leaves a protective cover of crop residue on the surface can help to minimize erosion.

Overgrazing or grazing when the soil is wet reduces the extent of plant cover and results in surface compaction and poor tilth, and thus it increases the susceptibility to erosion. Proper stocking rates, rotation grazing, and timely deferment of grazing, especially during wet periods, help to keep the pasture in good condition. The proper location of livestock watering facilities helps to prevent surface compaction or the formation of ruts by making it unnecessary for cattle to travel long distances up down the steep slopes.

Soils that have low fertility meet the following criteria: The average content of organic matter in the surface layer is less than 1 percent, and the cation exchange capacity is equal to or less than 7 milliequivalent per 100 grams of soil.

Low fertility levels affect the health and vigor of the plants and thus have direct impact on the quantity and quality of livestock produced. Additions of fertilizers and other organic material should be based on the results of soil tests, on the needs of specific plant species, and on the desired level of production.

Soils that have low pH, or low reaction, have a pH value equal to or less than 5.5 in the surface layer.

Low soil reaction inhibits the uptake of certain nutrients by the plants or accelerates the absorption of certain other elements to the level of toxic concentrations. Either of these conditions affects the health and vigor of plants. Applications of lime should be based on the results of soil tests. The goal is to achieve the optimum pH level for the uptake of the major nutrients by the specific grass, legume, or combination of grasses and legumes.

Available water capacity is low when it is a weighted average of less than 0.10 inch of water per inch of soil within a depth of 40 inches or when it is a weighted average of less than 3 inches in the root zone if the root zone is less than 40 inches thick. Available water

capacity refers to the capacity of soils to hold water available for use by most plants. The quality and quantity of the pasture may be reduced if the available water is inadequate for the maintenance of a healthy community of desired pasture species and thus the desired number of livestock. A poor quality pasture may increase the hazard of erosion and increase the runoff of pollutants. Planting drought-resistant species of grasses and legumes helps to establish a cover of vegetation. Irrigation may be needed.

In areas where slopes are 10 percent or more, the operation of farm equipment may be restricted.

In areas where the soils have more than 15 percent gravel in the surface layer, seedbed preparation and renovation practices may be hindered. The cobbles and stones can be removed or piled in a corner of the field.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not take into account major and generally expensive landshaping that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, and for engineering purposes.

In the capability system, as described in "Land Capability Classification" *(14)*, soils generally are grouped at three levels: capability class, subclass, and unit. These categories indicate the degree and kinds of limitations affecting mechanized farming systems that produce the more commonly grown field crops, such as corn, soybean, small grain, and hay. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by numerals 1 through 8. The numerals indicate progressively greater limitations and narrower choices for practical use.

If properly managed, soils in classes 1, 2, 3, and 4 are suitable for the mechanized production of commonly grown field crops and for pasture and woodland. The degree of the soil limitations affecting the production of cultivated crops increases progressively from class 1 to class 4. The limitations can affect levels of production and the risk of permanent soil deterioration caused by erosion and other factors.

Soils in classes 5, 6, and 7 are generally not suited to the mechanized production of commonly grown field crops without special management, but they are suitable for plants that provide a permanent cover, such as grasses and trees. The severity of the soil limitations affecting crops increases progressively from class 5 to class 7. The local office of the Cooperative Extension Service or the Natural Resources Conservation Service can provide guidance on the use of these soils as cropland.

Areas in class 8 are generally not suitable for crops, pasture, or woodland without a level of management that is impractical. These areas may have potential for other uses, such as recreational facilities and wildlife habitat.

Capability subclasses identify the dominant kind of limitation in the class. They are designated by adding a capital letter, E, *W, S,* or C, to the class numeral, for example, 2E. The letter E shows that the main hazard is the risk of erosion unless a close-growing plant cover is maintained; *W* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *S* shows that the soil is limited mainly because it is shallow, droughty, or stony; and C, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

There are no subclasses in class 1 because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *W, S,* or C because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use mainly to pasture, rangeland, woodland, wildlife habitat, or recreation.

The capability classification of each map unit is given in table 7—"Land Capability and Yields per Acre of Crops and Pasture."

Prime Farmland

In this section, prime farmland is defined. The soils in the survey area that are considered prime farmland are listed in table 9— "Prime Farmland."

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, State, and Federal levels, as well as individuals, must encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to food, feed, forage, fiber, and oilseed crops. Such soils have properties that favor the economic production of sustained high yields of crops. The soils need only to be treated and managed by acceptable farming methods. An adequate moisture supply and a sufficiently long growing season are required. Prime farmland soils produce the highest yields with minimal expenditure of energy and economic resources, and

farming these soils results in the least damage to the environment.

Prime farmland soils may presently be used as cropland, pasture, or woodland or for other purposes. They either are used for food and fiber or are available for these uses. Urban or built-up land, public land, and water areas cannot be considered prime farmland. Urban or built-up land is any contiguous unit of land 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, sites for institutions or public buildings, small parks, golf courses, cemeteries, railroad yards, airports, sanitary landfills, sewage treatment plants, and water-control structures. Public land is land not available for farming in National forests, National parks, military reservations, and State parks.

Prime farmland soils commonly receive an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable, and the level of acidity or alkalinity and the content of salts and sodium are acceptable. The soils have few, if any, rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods, and they are not frequently flooded during the growing season or are protected from flooding. Slopes range mainly from 0 to 6 percent.

Soils that have a high water table, are subject to flooding, or are droughty may qualify as prime farmland where these limitations are overcome by drainage measures, flood control, or irrigation. Onsite evaluation is necessary to determine the effectiveness of corrective measures. More information about the criteria for prime farmland can be obtained at the local office of the Natural Resources Conservation Service.

A recent trend in land use has been the conversion of prime farmland to urban and industrial uses. The loss of prime farmland to other uses puts pressure on lands that are less productive than prime farmland.

About 192,168 acres, or nearly 45 percent of the survey area, would meet the criteria for prime farmland. Areas of this land are throughout the county.

The map units in the survey area that meet the criteria for prime farmland are listed in table 9— "Prime Farmland." On some soils included in the table, measures that overcome limitations are needed. The need for these measures is indicated in parentheses after the map unit name. The location of each map unit is shown on the detailed soil maps. The soil qualities that affect use and management are described in the section "Soil Series and Detailed Soil Map Units." This list does not constitute a recommendation for a particular land use.

Erosion Factors

Soil erodibility (K) and soil-loss tolerance (T) factors are used in an equation that predicts the amount of soil lost through water erosion in areas of cropland. The procedure for predicting soil loss is useful in guiding the selection of soil and water conservation practices.

Soil Erodibility (K) Factor

The soil erodibility factor (K) indicates the susceptibility of a soil to sheet and rill erosion by water. The soil properties that influence erodibility are those that affect the infiltration rate, the movement of water through the soil, and the water storage capacity of the soil and those that allow the soil to resist dispersion, splashing, abrasion, and the transporting forces of rainfall and runoff. The most important soil properties are the content of silt plus very fine sand, the content of sand coarser than very fine sand, the content of organic matter, soil structure, and permeability.

Fragment-Free Soil Erodibility (Kf) Factor

This is one of the factors used in the Revised Universal Soil Loss Equation. It shows the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Soil-Loss Tolerance (T) Factor

The soil-loss tolerance factor (T) is an estimate of the maximum annual rate of soil erosion that can occur over a sustained period without affecting crop productivity. The rate is expressed in tons of soil loss per acre per year. Ratings of 1 to 5 are used, depending on soil properties and prior erosion. The criteria used in assigning a T factor to a soil include maintenance of an adequate rooting depth for crop production, potential reduction of crop yields, maintenance of water-control structures affected by sedimentation, prevention of gullying, and the value of nutrients lost through erosion.

Wind Erodibility Groups

Wind erodibility is directly related to the percentage of dry, nonerodible surface soil aggregates larger than 0.84 millimeter in diameter. From this percentage, the wind erodibility index factor (I) is determined. This factor is an expression of the stability of the soil aggregates, or the extent to which they are broken down by tillage and the abrasion caused by windblown soil particles. Soils are assigned to wind erodibility groups (WEG) having similar percentages of dry soil aggregates larger than 0.84 millimeter.

Additional information about wind erodibility groups and K, Kf, T, and I factors can be obtained from local offices of the Natural Resources Conservation Service or the Cooperative Extension Service.

Hydric Soils

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed.

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetlands *(3, 4, 9, 12)*. Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part *(5)*. These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria which identify those estimated soil properties unique to hydric soils have been established *(6)*. These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" *(15, 16)* and in the "Soil Survey Manual" *(11)*.

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators that can be used to make onsite determinations of hydric soils in St. Clair County are specified in "Field Indicators of Hydric Soils in the United States" *(13)*.

Hydric soils are identified by examining and describing the soil a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described as deep as necessary for an understand of to understand the redoximorphic processes. Then, using the completed soil description, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if one (or more) of the approved indicators is present.

This survey can be used to locate probable areas of hydric soils.

The following map units meet the definition of hydric soils and in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site *(9, 13)*.

31A—Pierron silt loam, 0 to 2 percent slopes
50A—Virden silt loam, 0 to 2 percent slopes
109A—Racoon silt loam, 0 to 2 percent slopes
112A—Cowden silt loam, 0 to 2 percent slopes
385A—Mascoutah silty clay loam, 0 to 2 percent slopes
433A—Floraville silt loam, 0 to 2 percent slopes
468A—Lakaskia silt loam, 0 to 2 percent slopes
885A—Virden-Fosterburg silt loams, 0 to 2 percent slopes
993A—Cowden-Piasa silt loams, 0 to 2 percent slopes
1071A—Darwin silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded
1248A—McFain silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded
1288A—Petrolia silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded
2071L—Darwin-Urban Land complex, 0 to 2 percent slopes, occasionally flooded, long duration
3070L—Beaucoup silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration
3076A—Otter silt loam, 0 to 2 percent slopes, frequently flooded
3083L—Wabash silty clay, 0 to 2 percent slopes, frequently flooded, long duration
3288L—Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration
3334L—Birds silt loam, 0 to 2 percent slopes, frequently flooded, long duration
3847L—Fluvaquents-Orthents complex, frequently flooded, long duration
8026A—Wagner silt loam, 0 to 2 percent slopes, occasionally flooded
8070A—Beaucoup silty clay loam, 0 to 2 percent slopes, occasionally flooded
8071L—Darwin silty clay, 0 to 2 percent slopes, occasionally flooded, long duration
8084A—Okaw silt loam, 0 to 2 percent slopes, occasionally flooded
8109A—Racoon silt loam, 0 to 2 percent slopes, occasionally flooded
8162A—Gorham silty clay loam, 0 to 2 percent slopes, occasionally flooded
8464A—Fluvaquents, loamy, 0 to 2 percent slopes, frequently flooded
8524L—Zipp silty clay, 0 to 2 percent slopes, occasionally flooded, long duration
8591A—Fults silty clay, 0 to 2 percent slopes, occasionally flooded

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions of the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions of the landform.

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, and yards from wind and snow. They also protect fruit trees and gardens, and they furnish habitat for wildlife. Several rows of low- and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil. Field windbreaks protect cropland and crops from wind, help to keep snow on the fields, and provide food and cover for wildlife.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Windbreaks are often planted on land that did not originally support trees. Knowledge of how trees perform on such land can be gained only by observing and recording the performance of trees that have been planted and have survived. Many popular windbreak species are not indigenous to the areas in which they are planted.

Each tree or shrub species has certain climatic and physiographic limits. Within these parameters, a tree or shrub may grow well or grow poorly, depending on the characteristics of the soil. Each tree or shrub has definable potential heights in a given physiographic area and under a given climate. Accurate definitions of potential heights are necessary when a windbreak is planned and designed.

Table 10—"Windbreaks and Environmental Plantings" shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in this table are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from local offices of the Natural Resources Conservation Service or the Cooperative Extension Service or from a nursery.

Forestland

Hardwood forests originally covered about 295,000 acres of St. Clair county. There now is less than 20,000 acres of forestland left. Settlers cleared some of the forests for farms, homesteads, and fuel. An increase in population and new farming technology during the latter part of the 19th century resulted in a large decline in the acreage of forestland. The demand for agricultural production during the 20th century and urban expansion have accelerated this decline. Much of the remaining forestland is in areas that are too steep or too wet for cultivation. The soils in these areas have fair to good potential for trees of high quality if the forestland is properly managed.

Many of the stands can be improved by measures that thin out mature trees and remove undesirable species. Measures that exclude livestock, prevent fires, and control diseases and insects are also needed.

Assistance in establishing, improving or managing forestland is available from foresters or natural resources specialists.

Forestland Management and Productivity

Information about the productivity and management of the forested map units in the survey area is given in table 11—"Forestland Management and Productivity." Table 11 can be used by forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed.

Woodland Ordination System

Table 11—"Forestland Management and Productivity" lists the ordination (woodland suitability) symbol for each soil. The ordination system is a nationwide uniform system of labeling soils or groups of soils that are similar in use and management. The primary factors evaluated in the woodland ordination system are productivity of the forest overstory tree species and the principal soil properties resulting in hazards and limitations that affect forest management. There are three parts of the ordination system: class, subclass, and group. The class and subclass are referred to as the ordination symbol.

Ordination Class Symbol

The first element of the ordination symbol is a number that denotes potential productivity in terms of cubic meters of wood per hectare per year for the indicator tree species. The larger the number, the greater the potential productivity. Potential productivity is based on site index and the corresponding culmination of mean annual increment. For example, the number 1 indicates a potential production of 1 cubic meter of wood per hectare per year (14.3 cubic feet per acre per year) and 10 indicates a potential production of 10 cubic meters of wood per hectare per year (143 cubic feet per acre per year).

Indicator species is a species that is common in the area and is generally, but not necessarily, the most productive on the soil. It is the species that determines the ordination class. It is the first species listed for a particular map unit in table 11—"Forestland Management and Productivity." This table shows the productivity for all species where data have been collected.

Site index is determined by taking height measurements and determining the age of selected trees within stands of a given species. This index is the average height, in feet, that the trees attain in a specified number of years. This index applies to fully stocked, even-aged, unmanaged stands. The site indexes shown in the table 11 are averages based on measurements made at sites that are representative of the soil series. When the site index and forestland productivity of different soils are compared, the values for the same tree species should be compared. The higher the site index number, the more productive the soil for that species. Site index values are used in conjunction with yield tables to determine average annual yields. Indirectly, they are used to determine the productivity class in the ordination class symbol.

Ordination Subclass Symbol

The second element of the ordination symbol, or subclass, is a capital letter that indicates certain soil or physiographic characteristics that contribute to

important hazards or limitations to be considered in management. The subclasses are defined as follows:

Subclass X indicates that forestland use and management are limited by stones or rocks.

Subclass W indicates that forestland use and management are significantly limited by excess water, either seasonally or throughout the year. Restricted drainage, a high water table, or flooding can adversely affect either stand development or management.

Subclass T indicates that the root zone has toxic substances. Excessive alkalinity, acidity, sodium salts, or other toxic substances impede the development of desirable species.

Subclass D indicates that forestland use and management are limited by a restricted rooting depth. The rooting depth is restricted by hard bedrock, a hardpan, or other restrictive layers in the soil.

Subclass C indicates that forestland use and management are limited by the kind or amount of clay in the upper part of the soil.

Subclass S indicates that the soil is sandy, has a low available water capacity, and normally has a low content of available plant nutrients. The use of equipment is limited during dry periods.

Subclass F indicates that forestland use and management are limited by a high content of rock fragments that are larger than 2 millimeters and smaller than 10 inches. This subclass includes flaggy soils.

Subclass R indicates that forestland use and management are limited by excessive slope.

Subclass A indicates that no significant limitations affect forestland use and management.

Management Concerns

In table 11 the soils are rated for the erosion hazard, the equipment limitation, seedling mortality, the windthrow hazard, and plant competition.

The *erosion hazard* is *slight* if the expected soil loss is small; *moderate* if some measures are needed to control erosion during logging and road construction; and *severe* if intensive management or special equipment and methods are needed to prevent excessive soil loss.

The *equipment limitation* is *slight* if the use of equipment is not limited to a particular kind of equipment or time of year; *moderate* if there is a short seasonal limitation or a need for some modification in the management of equipment; and *severe* if there is a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings are for seedlings that are from a good planting stock and that are properly planted during a period of average rainfall. A rating of *slight* indicates that the expected mortality of the planted seedlings is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

Windthrow hazard is *slight* if trees in wooded areas are not expected to be blown down by commonly occurring winds; *moderate* if some trees are blown down during periods of excessive soil wetness and strong winds; and *severe* if many trees are blown down during periods of excessive soil wetness and moderate or strong winds.

Plant competition is *slight* if there is little or no competition from other plants; *moderate* if plant competition is expected to hinder the development of a fully stocked stand of desirable trees; and *severe* if plant competition is expected to prevent the establishment of a desirable stand unless the site is intensively prepared, weeded, or otherwise managed for the control of undesirable plants.

Potential Productivity

The potential productivity of merchantable or *common trees* is expressed as a site index, which is described under the heading "Potential productivity." Commonly grown trees are those that forestland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

The productivity class, a number, is the yield likely to be produced by the most important trees. This number, expressed as cubic meters per hectare per year, indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

The column *"Suggested trees to plant" is* in table 11 lists trees that are suitable for commercial wood production and that are suited to the soils.

Recreation

The soils of the survey area are rated in table 12—"Recreational Development" according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, the ability of the soil to support vegetation, access to water, potential water impoundment sites, and either access to public sewer lines or the capacity of the soil to absorb septic tank effluent. Soils subject to flooding are limited, in varying degrees, for recreational uses by the duration of flooding and the season when it occurs. Onsite assessment of the height, duration, intensity, and frequency of flooding is essential in planning recreational facilities.

Camp areas are tracts of land used intensively as sites for tents, trailers, and campers and for outdoor activities that accompany such sites. These areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The soils are rated on the basis of soil properties that influence the ease of developing camp areas and performance of the areas after development. Also considered are the soil properties that influence trafficability and promote the growth of vegetation after heavy use.

Picnic areas are natural or landscaped tracts of land that are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The soils are rated on the basis of soil properties that influence the cost of shaping the site, trafficability, and the growth of vegetation after development. The surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry.

Playgrounds are areas used intensively for baseball, football, soccer, or similar activities. These areas require a nearly level soil that is free of stones and that can withstand heavy foot traffic and maintain an adequate cover of vegetation. The soils are rated on the basis of soil properties that influence the cost of shaping the site, trafficability, and the growth of vegetation. Slope and stoniness are the main concerns in developing playgrounds. The surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry.

Paths and trails are areas used for hiking and horseback riding. The areas should require little or no cutting and filling during site preparation. The soils are rated on the basis of soil properties that influence trafficability and erodibility. Paths and trails should remain firm under foot traffic and not be dusty when dry.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

The interpretative ratings in this table help engineers, planners, and others to understand how soil properties influence recreational uses. Ratings for proposed uses are given in terms of limitations. Only the most restrictive features are listed. Other features may limit a specific recreational use.

The degree of soil limitation is expressed as slight, moderate, or severe.

Slight means that soil properties are favorable for the rated use. The limitations are minor and can be easily overcome. Good performance and low maintenance are expected.

Moderate means that soil properties are moderately favorable for the rated use. The limitations can be overcome or modified by special planning, design, or maintenance. During some part of the year, the expected performance may be less desirable than that of soils rated *slight*.

Severe means that soil properties are unfavorable for the rated use. Examples of limitations are slope, bedrock near the surface, flooding, and a seasonal high water table. These limitations generally require major soil reclamation, special design, or intensive maintenance. Overcoming the limitations generally is difficult and costly.

The information in table 12 can be supplemented by other information in this survey, for example, interpretations for dwellings without basements and for local roads and streets in table 14, and interpretations for septic tank absorption fields in table 15.

Wildlife Habitat

In general, most lands in St. Clair County are not managed primarily for wildlife. Good land management practices, however, often improve an area's value for wildlife as well. For example, farm practices that leave crop residue on the fields during the fall and winter months not only help to control erosion but also provide winter cover and food for some wildlife species. Allowing grassed waterways, road ditches, fencelines, set-aside fields, and vacant properties to remain unmowed until early August provides much-needed habitat for ground-nesting wildlife, such as rabbits, pheasants, and many species of songbirds.

Many temporarily and seasonally flooded wetlands have been impacted by our land use practices. Development and cultivation in these wetlands should be avoided. Buffer strips surrounding wetland areas provide food and nesting cover for many wildlife species and prevent these areas from filling in with eroded sediment. Wetlands, streambanks, and woodlots should be fenced so that livestock are excluded. Fencing protects and maintains the native plant communities that support wildlife species, helps to control erosion, and improves water quality in our streams and rivers.

Soils affect the kind and amount of vegetation in an area and thus affect the kind and abundance of wildlife species that are likely to inhabit that area. When an area is being restored or managed for wildlife habitat, knowledge of the soils on the site is important. For example, poorly drained and very poorly drained soils have seasonal high water tables that are most likely to support vegetation tolerant of wet conditions. This kind of vegetation is likely to attract wetland wildlife species. Also in areas, poorly drained and very poorly drained soils have been drained by subsurface tile drains or drainage ditches. Such areas offer opportunities for the restoration of wetland habitat, provided that negative impacts on neighboring properties can be avoided.

Upland soils support plant communities that were once dominated by prairie grass and oak savannah habitats. These habitats can also be restored by applying management practices that promote or reestablish the native plant species while controlling or eliminating competing exotic vegetation.

Assistance with wildlife habitat projects is available from various local, State, and Federal agencies, including the Illinois Department of Conservation, the U.S. Fish and Wildlife Service, the Natural Resources Conservation Service, and the local Soil and Water Conservation District.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. If food, cover, or water is missing, inadequate, or inaccessible, wildlife will be scarce or will not inhabit the area.

If the soils have potential for habitat development, wildlife habitat can be created or improved by planting appropriate vegetation, properly managing the existing plant cover, and fostering the natural establishment of desirable plants.

Elements of Wildlife Habitat

The elements of wildlife habitat are described in the following paragraphs.

In table 13, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of good indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of fair indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of poor indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of very poor indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

Grain and seed crops are domestic grains, and seed-producing herbaceous plants used by wildlife. Examples are wheat, rye, oats, and barley.

Grasses and legumes are domestic perennial grasses, and herbaceous legumes planted for wildlife food and cover. Examples are bromegrass, timothy, orchardgrass, clover, alfalfa, and trefoil.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds, that provide food and cover for wildlife. Examples are bluestem, indiangrass, blueberry, goldenrod, lambsquarters, dandelions, blackberry, ragweed, wheatgrass, and nightshade.

The major soil properties affecting the growth of grain and forage crops, and wild herbaceous plants are depth of the root zone, texture of the surface layer, the amount of water available to plants, wetness, salinity or sodicity, and flooding. The length of the growing season also is important.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage that wildlife eat. Examples are oak, poplar, boxelder, birch, maple, green ash, willow, and American elm. Examples of fruit-producing shrubs that are suitable for planting on soils that have good potential for these plants are hawthorn, honeysuckle, American plum, redosier dogwood, chokecherry, serviceberry, silver buffaloberry, and crabapple.

Coniferous plants are cone-bearing trees, shrubs, or ground cover that provide habitat or supply food in the form of browse, seed, or fruitlike cones. Examples are pine, spruce, hemlock, fir, yew, cedar, larch, and juniper.

The major soil properties affecting the growth of hardwood and coniferous trees, and shrubs are depth of root zone, the amount of water available to plants, and wetness.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Wetland plants produce food or cover for wetland wildlife. Examples of these plants are smartweed, wild millet, rushes, sedges, bulrushes, wild rice, arrowhead, waterplantain, pickerelweed, and cattail.

The major soil properties affecting wetland plants are texture of the surface layer, wetness, acidity or alkalinity, and slope.

Shallow water areas have an average depth of less than 5 feet. They are useful as habitat for some wildlife species. They are naturally wet areas or are created by dams, levees, or water-control measures in marshes or streams. Examples are muskrat marshes, waterfowl feeding areas, wildlife watering developments, beaver ponds, and other wildlife ponds.

The major soil properties affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability.

Kinds of Wildlife Habitat

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, and shrubs. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include Hungarian partridge, pheasant, meadowlark, field sparrow, killdeer, cottontail rabbit, and red fox.

Habitat for forestland wildlife consists of areas of hardwoods or conifers or a mixture of these and associated grasses, legumes, and wild herbaceous plants. The wildlife attracted to this habitat include wild turkey, thrushes, woodpeckers, owls, tree squirrels, porcupine, raccoon, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy, shallow water areas that support water-tolerant plants. The wildlife attracted to this habitat include ducks, geese, herons, bitterns, rails, kingfishers, muskrat, otter, mink, and beaver.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the "Glossary."

Building Site Development

Over the last two decades, St. Clair County has experienced a significant increase in population. This increase has had an important impact on land use.

Even though agricultural erosion accounts for most of the total eroded sediment because of the large acreage of farmland, urban erosion is quickly becoming a major factor affecting water quality. It is estimated that the rate of urban erosion and the resulting sediment may be as much as 300 to 400 times the erosion rate in agricultural areas. Urban land under development is commonly stripped for several years without adequate erosion control. Soil compaction and massive earth moving are more conducive to erosion than seedbed preparation for crop production.

Urban erosion-control practices utilize essentially the same concepts as those applied to agriculture. The soil surface should be protected from the impact of rain drops, and the runoff from accumulated rainwater must be controlled. Effective control of erosion and sediment involves three major elements. First, stabilizing the soil can be accomplished by maintaining a permanent or temporary vegetative cover, mulching, or using a variety of other practices. Second, conservation practices can be used to control runoff. These practices include installing diversions, grassed waterways or lined swales, storm sewers, or gully-control structures.

Third, sediment can be controlled by using sediment basins, sediment traps, or filter fences.

Erosion-control measures are effective alone or in combinations. The measures used and their effectiveness depend on the soil characteristics and topography. Information about the design of erosion-control measures is provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

Table 14—"Building Site Development" shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping.

The limitations are considered: *slight* if soil properties and site features generally are favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Dwellings and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrinking and swelling, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills generally are limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, potential for frost action, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Methods of waste disposal have gradually evolved with changes in technology and with the increasing growth of St. Clair County. Electrification and the subsequent ability to easily bring water supplies into homes increased the need for disposal of expanding waste-water volumes. The population boom experienced in the county since the 1940's and changing lifestyles further expanded waste-water volumes. Onsite waste-water disposal methods became more complex as the population increased. Problems occurred when improper sites were used for disposal of waste-water. These problems, which created threats to the health and well-being of citizens, prompted a need for more control over the type, size, and location of waste-water disposal systems.

The method used for locating suitable septic field sites changed from percolation tests to a more scientific "soil suitability" test in the late 1980's. Professional soil scientists began investigating proposed septic system sites to determine the potential of the soils for both disposing of and treating waste-water. Another significant change involved the method of platting lots and subdivisions. Previously, subdivisions were platted with little or no regard to soil or site conditions. As a result, many septic systems were installed on sites that could not adequately treat or dispose of waste-water. Now the soils in potential subdivision sites are intensively mapped prior to the actual platting of lots. This procedure allows for each lot to have enough suitable soil for both a primary and backup septic field area and should prevent many of the problems older subdivision areas have experienced.

The waste-water disposal systems designed during and after the late 1980's are expected to last for long periods of time with proper maintenance. These larger, more sophisticated systems are being installed in many areas where it is unlikely that public sewer systems will ever become available to many rural subdivisions in the future.

Future plans include the provisions for a waste-water disposal plan for the county. This plan will detail how the county will handle individual waste-water disposal systems. It will also address the management and maintenance of traditional and innovative onsite systems. Proper planning will help to assure the protection of the public's health and the preservation and improvement of surface-water and ground-water quality.

Table 15—"Sanitary Facilities" shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. It also shows the suitability of the soils for use as a daily cover for landfill.

Soil properties are important in selecting sites for sanitary facilities and in identifying limiting soil properties and site features to be considered in planning, design, and installation. Soil limitation ratings of *slight, moderate,* or *severe* are given for septic tank absorption fields, sewage lagoons, and trench and area sanitary landfills. Soil suitability ratings of *good, fair,* and *poor* are given for daily cover for landfill.

A rating of *slight* or *good* indicates that the soils have no limitations or that the limitations can be easily overcome. Good performance and low maintenance can be expected. A rating of *moderate* or *fair* indicates that the limitations should be recognized but generally can be overcome by good management or special design. A rating of *severe* or *poor* indicates that overcoming the limitations is difficult or impractical. Increased maintenance may be required.

Septic tank absorption fields are areas in which subsurface systems of tile or perforated pipe distribute effluent from a septic tank into the natural soil. The centerline of the tile is assumed to be at a depth of 24 inches. Only the part of the soil between depths of 24 and 60 inches is considered in making the ratings. The soil properties and site features considered are those that affect the absorption of the effluent, those that affect the construction and maintenance of the system, and those that may affect public health.

The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Individuals need to contact the St. Clair County Health Department for procedures and local septic codes to determine site feasibility for septic tank absorption fields.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted, relatively impervious soil material. Aerobic lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Relatively impervious soil material for the lagoon floor and sides is desirable to minimize seepage and contamination of local ground water.

Table 15—"Sanitary Facilities" gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Trench sanitary landfill is an area where solid waste is disposed of by placing refuse in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil that is excavated from the trench. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. Soil properties that influence the risk of pollution, the ease of excavation, trafficability, and revegetation are the major considerations in rating the soils.

Area sanitary landfill is an area where solid waste is disposed of by placing refuse in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil that is imported from a source away from the site. A final cover of soil at least 2 feet thick is placed over the completed landfill. Soil properties that influence trafficability, revegetation, and the risk of pollution are

the main considerations in rating the soils for area sanitary landfills.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground-water pollution. The ratings in table 14 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The suitability of a soil for use as cover is based on properties that affect workability and the ease of digging, moving, and spreading the material over the refuse daily during both wet and dry periods.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best daily cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Waste Management

Soil properties are important when organic waste is applied as fertilizer and waste-water is applied in irrigated areas. They also are important when the soil is used as a medium for the treatment and disposal of the organic waste and waste-water. Unfavorable soil properties can result in environmental damage.

The use of organic waste and waste-water as production resources results in the conservation of energy and resources and minimizes the problems associated with waste disposal. If disposal is the goal, applying a maximum amount of the organic waste or the waste-water to a minimal area holds costs to a minimum and environmental damage is the main hazard. If reuse is the goal, a minimum amount should be applied to a maximum area and environmental damage is unlikely.

Interpretations developed for waste management may include ratings for manure- and food-processing waste, municipal sewage sludge, use of waste-water for irrigation, and treatment of waste-water by slow rate, overland flow, and rapid infiltration processes.

Specific information regarding waste management is available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Construction Materials

Table 16—"Construction Materials" gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In table 16 the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel, or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have one or more of the following characteristics: a plasticity index of more than 10, a high shrink-swell potential, many stones, slopes of more than 25 percent, or a water table at a depth of less than 1 foot. They may have layers of

suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 15 only the probability of finding material in suitable quantity in or below the soil is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that has up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

The surface layer of most soils generally is preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 17 "Water Management" gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features generally are favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In the table "Water Management," the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even more than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment

ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, or sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff.

Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of soil blowing or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of soil blowing, low available water capacity, restricted rooting depth, toxic substances such as salts or sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features listed in tables are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

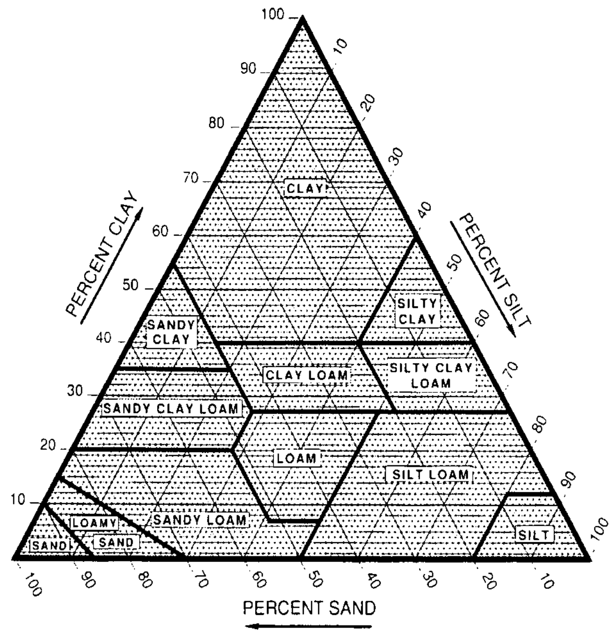

Figure 5.— Percentages of clay, silt, and sand in the basic USDA soil textural classes.

Engineering Index Properties

Table 18—"Engineering Index Properties" gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given in the series descriptions in Part I of this survey.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter *(fig. 5)*. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the "Glossary."

Classification of the soils is determined according to the system adopted by the American Association of State Highway and Transportation Officials *(1)* and the Unified soil classification system *(2)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

The tables 19 — "Physical Properties of the Soils" and 20 — "Chemical Properties of the Soils" show estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given in the series descriptions in Part I of this survey.

Clay as a soil separate, or component, consists of mineral soil particles that are less than 0.002 millimeter in diameter. The estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3-bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In the table "Physical Properties of the Soils," the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For

others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, more than 9 percent, is sometimes used.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In the table "Physical Properties of Soils," the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, very fine sand, sand, and organic matter (as much as 4 percent) and on soil structure and permeability. The estimates are modified by the presence of rock fragments. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their resistance to soil blowing in cultivated areas. The groups indicate the susceptibility of soil to soil blowing. Soils are grouped according to the following distinctions:

1. Coarse sands, sands, fine sands, and very fine sands. These soils generally are not suitable for crops. They are extremely erodible, and vegetation is difficult to establish.

2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, and sapric soil material. These soils are very highly erodible. Crops can be grown if intensive measures to control soil blowing are used.

3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams. These soils are highly erodible. Crops can be grown if intensive measures to control soil blowing are used.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams that have more than 5 percent finely divided calcium carbonate. These soils are highly erodible. Crops can be grown if intensive measures to control soil blowing are used.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay. These soils are moderately erodible. Crops can be grown if measures to control soil blowing are used.

5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material. These soils have less than 5 percent finely divided calcium carbonate. These soils are moderately erodible. Crops can be grown if measures to control soil blowing are used.

6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay. These soils have less than 5 percent finely divided calcium carbonate. These soils are moderately erodible. Crops can be grown if ordinary measures to control soil blowing Care used.

7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material. These soils have less than 5 percent finely divided calcium carbonate. These soils are very slightly erodible. Crops can be grown if ordinary measures to control soil blowing are used.

8. Soils that are not subject to soil blowing because of coarse fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to soil blowing, or the tons per acre per year that can be expected to be lost to soil blowing. There is a close correlation between soil blowing and the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence soil blowing.

Cation-exchange capacity is the total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. Soils having a high cation-exchange capacity can retain cations. The ability to retain cations helps to prevent the pollution of ground water.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for

fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the soil. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Sodium adsorption ratio (SAR) expresses the relative activity of sodium ions in exchange reactions in the soil. SAR is a measure of the amount of sodium relative to calcium and magnesium in the water extract from saturated soil paste.

Water Features

Table 21—"Water Features" gives estimates of several important water features used in land use planning that involves engineering considerations. These features are described in the following paragraphs.

Hydrologic soil groups are groups of soils that, when saturated, have the same runoff potential under similar storm and ground cover conditions. The soil properties that affect the runoff potential are those that influence the minimum rate of infiltration in a bare soil after prolonged wetting and when the soil is not frozen. These properties include the depth to a seasonal high water table, the intake rate, permeability after prolonged wetting, and the depth to a very slowly permeable layer. The influences of ground cover and slope are treated independently and are not taken into account in hydrologic soil groups.

In the definitions of the hydrologic soil groups, the infiltration rate is the rate at which water enters the soil at the surface and is controlled by surface conditions. The transmission rate is the rate at which water moves through the soil and is controlled by properties of the soil layers.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist chiefly of very deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well or well drained soils that have a moderately fine to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils that have a moderately fine or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clayey soils that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to two hydrologic groups in table 21, the first letter is for drained areas and the second is for undrained areas.

Flooding, the temporary covering of the soil surface by flowing water, is caused by overflow from streams or by runoff from adjacent slopes. Shallow water standing or flowing for short periods after rainfall or snowmelt is not considered flooding. Standing water in marshes and swamps or in closed depressions is considered to be ponding.

Table 21 gives the frequency and duration of flooding and the time of year when flooding is most likely to occur. Frequency, duration, and probable dates of occurrence are estimated. Frequency generally is expressed as none, rare, occasional, or frequent. *None* means flooding is not probable; *rare* that it is unlikely but is possible under unusual weather conditions (the chance of flooding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); and *frequent* that it occurs often under normal weather conditions (the chance of flooding is 50 percent in any year). The term *common* includes both frequent and occasional flooding.

Duration is expressed as *very brief* (less than 2 days), *brief* (2 to 7 days), *long* (7 to 30 days), and *very long* (more than 30 days). The time of year that flooding is most likely to occur is expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

The information on flooding is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and level of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is a zone of saturation at the highest average depth during the wettest season. It is at least 6 inches thick, persists in the soil for more than a few weeks, and is within 6 feet of the surface. Indicated in table 19 are the depth to the seasonal high water table, the kind of water table, and the months of the year when the water table usually is highest.

Figure 6.—Long duration ponding on Darwin silty clay, near East St. Louis. The farmstead is on a natural levee, Landes very fine sandy loam, 2 to 5 percent slopes, occasionally flooded.

An *apparent* water table is indicated by the level at which water stands in a freshly dug, unlined borehole after adequate time for adjustments in the surrounding soil.

A *perched* water table is one that is above an unsaturated zone in the soil. The basis for determining that a water table is perched may be general knowledge of the area. The water table is proven to be perched if the water level in a borehole is observed to fall when the borehole is extended.

Two numbers in the column showing depth to the water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. "More than 6.0" indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation *(fig. 6)*.

Soil Features

Table 22—"Soil Features" gives estimates of several important soil features used in land use planning that involves engineering considerations. These features are described in the following paragraphs.

Depth to bedrock is given if bedrock is within a depth of 80 inches. The depth is based on many soil borings and on observations during soil mapping. The rock is specified as either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Potential frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It

is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage mainly to pavements and other rigid structures.

A *low* potential for frost action indicates that the soil is rarely susceptible to the formation of ice lenses; a *moderate* potential indicates that the soil is susceptible to formation of ice lenses, resulting in frost heave and the subsequent loss of soil strength; and a *high* potential indicates that the soil is highly susceptible to formation of ice lenses, resulting in frost heave and the subsequent loss of soil strength.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil.

Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

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Glossary

Ablation till. Loose, permeable till deposited during the final downwasting sof glacial ice. Lenses of crudely sorted sand and gravel are common.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at tis junction with its main stream.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Animal-unit-month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	More than 12

Back slope. The geomorphic component that forms the steepest inclined surface and principalelement of many hill slopes. Back slopes in profile are commonly steep and linear and descend to a foot slope. In terms of gradational process, back slopes are erosional forms produced mainly by mass wasting and running water.

Basal till. Compact glacial till deposited beneath the ice.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation-exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bluff. A high bank or bold headland, with a broad, precipitous, sometimes rounded cliff face overlooking a plain or body of water, especially on the outside of a stream meander.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Chiseling. Tillage with an implement having one or more soil-penetrating points that loosen the subsoil and bring clods to the surface. A form of emergency tillage to control soil blowing.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clayey soil. Silty clay, sandy clay, or clay.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Closed depression. A low area completely surrounded by higher ground and having no natural outlet.

Coarse fragments. Mineral or rock particles larger than 2 millimeters in diameter.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Colluvium. Soil material, rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. Any tillage and planting system in which a cover of crop residue is maintained on at least 30 percent of the soil surface after planting in order to reduce the hazard of water erosion; in areas where soil blowing is the primary concern, a system that maintains a cover of at least 1,000 pounds of flat residue of small grain or the equivalent during the critical erosion period.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are:

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—Readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—Adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Contour stripcropping (or contour farming). Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coprogenous earth (sedimentary peat). Fecal material deposited in water by aquatic organisms.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deep soil. A soil that is 40 to 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Deferred grazing. Postponing grazing or arresting grazing for a prescribed period.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—These soils have very high and high hydraulic conductivity and a low water-holding capacity. They are not suited to crop production unless irrigated.

Somewhat excessively drained.—These soils have high hydraulic conductivity and a low water-holding capacity. Without irrigation, only a narrow range of crops can be grown and yields are low.

Well drained.—These soils have an intermediate water-holding capacity. They retain optimum amounts of moisture, but they are not wet close enough to the surface or long enough during the growing season to adversely affect yields.

Moderately well drained.—These soils are wet close enough to the surface or long enough that planting or harvesting operations or yields of some field crops are adversely affected unless a drainage system is installed. Moderately well drained soils commonly have a layer with low hydraulic conductivity, a wet layer relatively high in the profile, additions of water by seepage, or some combination of these.

Somewhat poorly drained.—These soils are wet close enough to the surface or long enough that planting or harvesting operations or crop growth is markedly restricted unless a drainage system is installed. Somewhat poorly drained soils commonly have a layer with low hydraulic conductivity, a wet layer high in the profile, additions of water through seepage, or a combination of these.

Poorly drained.—These soils commonly are so wet at or near the surface during a considerable part of the year that field crops cannot be grown under natural conditions. Poorly drained conditions are caused by a saturated zone, a layer with low hydraulic conductivity, seepage, or a combination of these.

Very poorly drained.—These soils are wet to the surface most of the time. The wetness prevents the growth of important crops (except rice) unless a drainage system is installed.

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. An area of ground at a lower elevation than the surrounding ground and in which water collects and is drained to a closed depression or lake or to a drainageway at a lower elevation. A drainageway may or may not have distinctly incised channels at its upper reaches or throughout its course.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, for example, fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. The term is more often applied to cliffs resulting from differential erosion.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity.*

Fine textured soil. Sandy clay, silty clay, or clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flat. The low-lying, exposed, flat land of a lake delta or of a lake bottom.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to inundation under flood-stage conditions unless protected artificially. It is usually a constructional landform built of sediment deposited during overflow and lateral migration of the stream.

Foot slope. The geomorphic component that forms the inner, gently inclined surface at the base of a hill slope. The surface profile is dominantly concave. In terms of gradational processes, a foot slope is a transition zone between an upslope site of erosion (back slope) and a downslope site of deposition (toe slope).

Forb. Any herbaceous plant not a grass or a sedge.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Glacial drift (geology). Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash (geology). Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Glacial till (geology). Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Glaciated uplands. Land areas that were previously covered by continental or alpine glaciers and that are at a higher elevation than the flood plain.

Glaciofluvial deposits (geology). Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Glaciolacustrine deposits. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage. A gullied map unit is one that has numerous gullies.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the number 2 precedes the letter C.

Cr horizon.—Sedimentary beds of consolidated sandstone and semiconsolidated and consolidated shale. Generally, roots can penetrate this horizon only along fracture planes.

R layer.—Hard, consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon but can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	Very low
0.2 to 0.4	Low
0.4 to 0.75	Moderately low
0.75 to 1.25	Moderate
1.25 to 1.75	Moderately high
1.75 to 2.5	High
More than 2.5	Very high

Interfluve. A landform composed of the relatively undissected upland or ridge between two adjacent ralleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Kame. A moundlike hill of glacial drift, composed chiefly of stratified sand and gravel.

Kame terrace. A terracelike ridge consisting of stratified sand and gravel that were deposited by a meltwater stream flowing between a melting glacier and a higher valley wall or lateral moraine and that remained after the disappearance of the ice. It is commonly pitted with kettles and has an irregular ice-contact slope.

Lacustrine deposit (geology). Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake plain. A surface marking the floor of an extinct lake, filled in by well sorted, stratified sediments.

Lake terrace. A narrow shelf, partly cut and partly built, produced along a lake shore in front of a scarp line of low cliffs and later exposed when the water level falls.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loamy soil. Coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, or silty clay loam.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. The soil is not strong enough to support loads.

Major land resource areas (MLRA). Major land resource areas (MLRA's) are geographically associated land resource areas. These are designated by Arabic numbers and identified by a descriptive geographic name.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonates, gypsum or other soluble salts, iron oxide, and manganese oxide.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately deep soil. A soil that is 20 to 40 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Moraine. An accumulation of glacial drift in a topographic landform of its own, resulting chiefly from the direct action of glacial ice. Some types are lateral, recessional, and terminal.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natural levee. A long, broad low ridge or embankment of sand and coarse silt, built by a stream on its flood plain and along both sides of its channel, especially in time of flood when water overflowing the normal banks is forced to deposit the coarsest part of its load. It has a gentle slope away from the river and toward the surrounding floodplain, and its highest elevation is closest to the river bank.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Outwash plain. An extensive area of glaciofluvial material that was deposited by meltwater streams.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil, adversely affecting the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	Less than 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	More than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of

moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. The water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid permeability or an impermeable layer near the surface, the soil may not adequately filter effluent from a waste disposal system.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity. expressed as pH values, are:

Ultra acid	Below 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha, alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Ridge. A long, narrow elevation of the land surface, usually sharp crested with steep sides and forming an extended upland between valleys.

Riser. The vertical or steeply sloping surface, commonly one of a series, of natural steplike landforms, as those of a glacial stairway or of successive stream terraces.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop. Exposures of bare bedrock other than lava flows and rock-lined pits.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandy soil. Sand or loamy sand.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Shallow soil. A soil that is 10 to 20 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder slope. The uppermost inclined surface at the top of a hillside. It is the transition zone from the back slope to the summit of a hill or mountain. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side Slope. The slope bounding a drainageway and lying between the drainageway and the adjacent interfluve. It is generally linear along the slope width and overland flow is parallel down the slope.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant or dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey the following simple slope classes are recognized:

Nearly level	0 to 2 percent
Gently sloping	2 to 5 percent
Moderately sloping	5 to 10 percent
Strongly sloping	10 to 18 percent
Steep	18 to 35 percent
Very steep	35 to 70 percent

The following complex slope classes are recognized:

Undulating	1 to 8 percent
Rolling	4 to 16 percent

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil quality. Soil quality is the fitness of a specific kind of soil to function within its surroundings, support plant and animal productivity, maintain or enhance water and air quality, and support human health and habitation.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	Less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 6 to 15 inches (15 to 38 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stream channel. The hollow bed where a natural stream of surface water flows or may flow; the deepest or central part of the bed, formed by the main current and covered more or less continuously by water.

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel. It originally formed near the level of the stream and is the dissected remnants of an abandoned flood plain, streambed, or valley floor that were produced during a former stage of erosion or deposition.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to soil blowing and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are: *platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter or loosen a layer that is restrictive to roots.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Summit. A general term for the top, or highest level, of an upland feature, such as a hill or mountain. It commonly refers to a higher area that has a gentle slope and is flanked by steeper slopes.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terminal moraine. A belt of thick glacial drift that generally marks the termination of important glacial advances. It commonly is a massive arcuate ridge or complex of ridges underlain by till and other types of drift.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material too thin for the specified use.

Till plain. An extensive nearly level to gently rolling or moderately sloping area that is underlain by or consists of till and that has a slope of 0 to 8 percent.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toe slope. The outermost inclined surface at the base of a hill. Toe slopes are commonly gentle and linear in profile.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Tread. The flat or gently sloping surface of natural step-like landforms, commonly one of a series, such as successive stream terraces.

Understory. Any plants in a forest community that grow to a height of less than 5 feet.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Urban land. Areas covered by buildings, dwellings, roads, streets, parking lots, and lawns and gardens.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Very deep soil. A soil that is more than 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Very shallow soil. A soil that is less than 10 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The action of uprooting and tipping over trees by the wind.

Tables

Table 4.—Classification of the Soils

(An asterisk in the first column indicates that some soil map units are taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series)

Soil name	Family or higher taxonomic class
Alvin	Coarse-loamy, mixed, superactive, mesic Typic Hapludalfs
Atlas	Fine, smectitic, mesic Aeric Chromic Vertic Epiaqualfs
Aviston	Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls
Bartelso	Fine, mixed, superactive, mesic Aquertic Argiudolls
Beaucoup	Fine-silty, mixed, superactive, mesic Fluvaquentic Endoaquolls
Bethalto	Fine-silty, mixed, superactive, mesic Udollic Endoaqualfs
Biddle	Fine, smectitic, mesic Aquertic Argiudolls
Birds	Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents
Blair	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs
Blake	Fine-silty, mixed, superactive, calcareous, mesic Aquic Udifluvents
Bold	Coarse-silty, mixed, superactive, calcareous, mesic Typic Udorthents
Bunkum	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs
Caseyville	Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs
Coffeen	Coarse-silty, mixed, superactive, mesic Fluvaquentic Hapludolls
Colp	Fine, smectitic, mesic Aquertic Chromic Hapludalfs
Coulterville	Fine-silty, mixed, superactive, mesic Aeric Epiaqualfs
Cowden	Fine, smectitic, mesic Vertic Albaqualfs
Darmstadt	Fine-silty, mixed, superactive, mesic Albic Natraqualfs
Darwin	Fine, smectitic, mesic Fluvaquentic Vertic Endoaquolls
Downsouth	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Drury	Fine-silty, mixed, superactive, mesic Dystric Eutrochrepts
Dupo	Coarse-silty over clayey, mixed over smectitic, superactive, nonacid, mesic Aquic Udifluvents
Edwardsville	Fine-silty, mixed, superactive, mesic Aquic Argiudolls
Floraville	Fine, smectitic, mesic Chromic Vertic Albaqualfs
Fluvaquents, loamy	Fluvaquents, loamy, mixed, superactive, nonacid, mesic
Fluvaquents	Fluvaquents, loamy, mixed, superactive, nonacid, mesic
Fosterburg	Fine, smectitic, mesic Vertic Argiaquolls
Fults	Fine, smectitic, mesic Vertic Endoaquolls
Geff	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs
Gorham	Fine-silty, mixed, superactive, mesic Fluvaquentic Endoaquolls
Grantfork	Fine-loamy, mixed, superactive, mesic Aeric Epiaqualfs
Haynie	Coarse-silty, mixed, superactive, calcareous, mesic Mollic Udifluvents
Herrick	Fine, smectitic, mesic Aquertic Argiudolls
Hickory	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Homen	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Hurst	Fine, smectitic, mesic Aeric Chromic Vertic Epiaqualfs
Lakaskia	Fine, mixed, superactive, mesic Vertic Argiaquolls
Landes	Coarse-loamy, mixed, superactive, mesic Fluventic Hapludolls
Lenzburg	Fine-loamy, mixed, active, calcareous, mesic Alfic Udarents
Littleton	Fine-silty, mixed, superactive, mesic Aquic Cumulic Hapludolls
Marine	Fine, smectitic, mesic Aeric Vertic Albaqualfs
Mascoutah	Fine-silty, mixed, superactive, mesic Typic Endoaquolls
McFain	Clayey over loamy, smectitic over mixed, superactive, mesic Fluvaquentic Endoaquolls
Meadowbank	Fine-silty, mixed, superactive, mesic Typic Argiudolls
Menfro	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Millstadt	Fine-silty, mixed, superactive, mesic Aeric Epiaqualfs
Morristown	Loamy-skeletal, mixed, active, calcareous, mesic Typic Udorthents
Nameoki	Fine, smectitic, mesic Aquertic Hapludolls
Negley	Fine-loamy, mixed, active, mesic Typic Paleudalfs
Oconee	Fine, smectitic, mesic Udollic Epiaqualfs
Okaw	Fine, smectitic, mesic Chromic Vertic Albaqualfs
Orion	Coarse-silty, mixed, superactive, nonacid, mesic Aquic Udifluvents
Orthents, acid substratum	Fine-silty, mixed, active, nonacid, mesic Aquic Udorthents
Orthents, loamy	Fine-loamy, mixed, active, nonacid, mesic Typic Udorthents
Orthents, silty	Fine-silty, mixed, active, nonacid, mesic Aquic Udorthents
Orthents	Fine-loamy, mixed, active, nonacid, mesic Aquic Udorthents
Otter	Fine-silty, mixed, superactive, mesic Cumulic Endoaquolls
Petrolia	Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents
Piasa	Fine, smectitic, mesic Vertic Natraqualfs
Pierron	Fine, smectitic, mesic Chromic Vertic Albaqualfs
Racoon	Fine-silty, mixed, superactive, mesic Typic Endoaqualfs
Redbud	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Ridgway	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Rocher	Coarse-loamy, mixed, superactive, calcareous, mesic Typic Udifluvents
Ruma	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Shaffton	Fine-loamy, mixed, superactive, mesic Fluvaquentic Hapludolls
*Swanwick	Fine-silty, mixed, active, nonacid, mesic Alfic Udarents
Sylvan	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Tice	Fine-silty, mixed, superactive, mesic Fluvaquentic Hapludolls
Typic Hapludalfs	Typic Hapludalfs

Table 4.—Classification of the Soils—continued

Soil name	Family or higher taxonomic class
Ursa	Fine, smectitic, mesic Chromic Vertic Hapludalfs
Virden	Fine, smectitic, mesic Vertic Argiaquolls
Wabash	Fine, smectitic, mesic Cumulic Vertic Endoaquolls
Wagner	Fine, smectitic, mesic Vertic Albaqualfs
Wakeland	Coarse-silty, mixed, superactive, nonacid, mesic Aeric Fluvaquents
Wakenda	Fine-silty, mixed, superactive, mesic Typic Argiudolls
Wilbur	Coarse-silty, mixed, superactive, mesic Fluvaquentic Eutrochrepts
Winfield	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Worthen	Fine-silty, mixed, superactive, mesic Cumulic Hapludolls
Zipp	Fine, mixed, active, nonacid, mesic Vertic Endoaquepts

Table 5.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
5C2	Blair silt loam, 5 to 10 percent slopes, eroded	216	*
5C3	Blair silt loam, 5 to 10 percent slopes, severely eroded	303	*
5D3	Blair silt loam, 10 to 18 percent slopes, severely eroded	315	*
8F2	Hickory silt loam, 18 to 35 percent slopes, eroded	636	0.1
31A	Pierron silt loam, 0 to 2 percent slopes	3,266	0.8
37A	Worthen silt loam, 0 to 2 percent slopes	456	0.1
37B	Worthen silt loam, 2 to 5 percent slopes	414	*
46A	Herrick silt loam, 0 to 2 percent slopes	14,629	3.4
50A	Virden silt loam, 0 to 2 percent slopes	2,049	0.5
75B	Drury silt loam, 2 to 5 percent slopes	488	0.1
79B	Menfro silt loam, 2 to 5 percent slopes	8,800	2.0
79C2	Menfro silt loam, 5 to 10 percent slopes, eroded	8,015	1.9
79C3	Menfro silt clay loam, 5 to 10 percent slopes, severely eroded	3,839	0.9
79D2	Menfro silt loam, 10 to 18 percent slopes, eroded	3,333	0.8
79D3	Menfro silty clay loam, 10 to 18 percent slopes, severely eroded	5,100	1.2
79F	Menfro silt loam, 18 to 35 percent slopes	4,901	1.1
79F3	Menfro silty clay loam, 18 to 35 percent slopes, severely eroded	3,315	0.8
79G	Menfro silt loam, 35 to 60 percent slopes	1,896	0.4
81A	Littleton silt loam, 0 to 2 percent slopes	376	*
90A	Bethalto silt loam, 0 to 2 percent slopes	3,464	0.8
109A	Racoon silt loam, 0 to 2 percent slopes	245	*
112A	Cowden silt loam, 0 to 2 percent slopes	2,109	0.5
113A	Oconee silt loam, 0 to 2 percent slopes	3,840	0.9
113B	Oconee silt loam, 2 to 5 percent slopes	2,128	0.5
267A	Caseyville silt loam, 0 to 2 percent slopes	3,705	0.9
267B	Caseyville silt loam, 2 to 5 percent slopes	830	0.2
283B	Downsouth silt loam, 2 to 5 percent slopes	1,730	0.4
283C2	Downsouth silt loam, 5 to 10 percent slopes, eroded	1,006	0.2
384A	Edwardsville silt loam, 0 to 2 percent slopes	7,852	1.8
384B	Edwardsville silt loam, 2 to 5 percent slopes	2,689	0.6
385A	Mascoutah silty clay loam, 0 to 2 percent slopes	3,794	0.9
423A	Millstadt silt loam, 0 to 2 percent slopes	5,606	1.3
423B	Millstadt silt loam, 2 to 5 percent slopes	1,856	0.4
433A	Floraville silt loam, 0 to 2 percent slopes	1,897	0.4
437B	Redbud silt loam, 2 to 5 percent slopes	1,542	0.4
437C2	Redbud silt loam, 5 to 10 percent slopes, eroded	2,262	0.5
438B	Aviston silt loam, 2 to 5 percent slopes	4,371	1.0
438C2	Aviston silt loam, 5 to 10 percent slopes, eroded	1,149	0.3
441B	Wakenda silt loam, 2 to 5 percent slopes	2,015	0.5
441C2	Wakenda silt loam, 5 to 10 percent slopes, eroded	1,957	0.5
466A	Bartelso silt loam, 0 to 2 percent slopes	3,183	0.7
468A	Lakaskia silt loam, 0 to 2 percent slopes	3,140	0.7
477B	Winfield silt loam, 2 to 5 percent slopes	11,061	2.6
477B2	Winfield silt loam, 2 to 5 percent slopes, eroded	612	0.1
477C3	Winfield silty clay loam, 5 to 10 percent slopes, severely eroded	858	0.2
477C2	Winfield silt loam, 5 to 10 percent slopes, eroded	4,515	1.0
491B2	Ruma silty clay loam, 2 to 5 percent slopes, eroded	1,249	0.3
491C3	Ruma silty clay loam, 5 to 10 percent slopes, severely eroded	1,710	0.4
491D3	Ruma silty clay loam, 10 to 18 percent slopes, severely eroded	2,297	0.5
515C3	Bunkum silty clay loam, 5 to 10 percent slopes, severely eroded	1,658	0.4
515C2	Bunkum silt loam, 5 to 10 percent slopes, eroded	361	*
515D3	Bunkum silty clay loam, 10 to 18 percent slopes, severely eroded	4,219	1.0
517A	Marine silt loam, 0 to 2 percent slopes	11,915	2.8
517B	Marine silt loam, 2 to 5 percent slopes	10,316	2.4
533	Urban land	10,208	2.4
536	Dumps	935	0.2
582B	Homen silt loam, 2 to 5 percent slopes	11,724	2.7
582B2	Homen silt loam, 2 to 5 percent slopes, eroded	1,665	0.4
582C2	Homen silt loam, 5 to 10 percent slopes, eroded	4,669	1.1
585F2	Negley loam, 18 to 35 percent slopes, eroded	973	0.2
801B	Orthents, silty, undulating	514	0.1
801D	Orthents, silty, steep	1,041	0.2
802B	Orthents, loamy, undulating	1,240	0.3
802D	Orthents, loamy, steep	2,465	0.6
821G	Morristown very stony silty clay loam, 35 to 70 percent slopes	3,623	0.8
824B	Swanwick silty clay loam, 1 to 5 percent slopes	462	0.1
825B	Lenzburg silty clay loam, acid substratum, 1 to 7 percent slopes	728	0.2
826D	Orthents, silty, acid substratum, rolling	323	*
864	Pits, quarries	673	0.2
865	Pits, gravel	73	*
866	Dumps, slurry	304	*
871B	Lenzburg gravelly silty clay loam, 1 to 7 percent slopes, stony	1,093	0.3

Table 5.—Acreage and Proportionate Extent of the Soils—continued

Map symbol	Soil name	Acres	Percent
871D	Lenzburg gravelly silty clay loam, 7 to 18 percent slopes, stony	2,304	0.5
871G	Lenzburg gravelly silty clay loam, 18 to 70 percent slopes, stony	4,009	0.9
878C3	Coulterville-Grantfork silty clay loams, 5 to 10 percent slopes, severely eroded	9,065	2.1
880B2	Coulterville-Darmstadt silt loams, 2 to 5 percent slopes, eroded	7,781	1.8
882A	Oconee-Darmstadt-Coulterville silt loams, 0 to 2 percent slopes	6,552	1.5
882B	Oconee-Coulterville-Darmstadt silt loams, 2 to 5 percent slopes	4,436	1.0
884C3	Bunkum-Coulterville silty clay loams, 5 to 10 percent slopes, severely eroded	11,988	2.8
885A	Virden-Fosterburg silt loams, 0 to 2 percent slopes	2,063	0.5
886F3	Ruma-Ursa silty clay loams, 18 to 35 percent slopes, severely eroded	6,433	1.5
894A	Herrick-Biddle-Piasa silt loams, 0 to 2 percent slopes	5,577	1.3
897D3	Bunkum-Atlas silty clay loams, 10 to 18 percent slopes, severely eroded	7,036	1.6
906C3	Redbud-Hurst silty clay loams, 5 to 10 percent slopes, severely eroded	945	0.2
907D3	Redbud-Colp silty clay loams, 10 to 18 percent slopes, severely eroded	1,047	0.2
962F2	Sylvan-Bold silt loams, 18 to 35 percent slopes, eroded	4,825	1.1
962G	Sylvan-Bold silt loams, 35 to 60 percent slopes	1,941	0.4
993A	Cowden-Piasa silt loams, 0 to 2 percent slopes	12,651	2.9
1071A	Darwin silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded	1,632	0.4
1248A	McFain silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded	824	0.2
1288A	Petrolia silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded	2,337	0.5
2071L	Darwin-Urban land complex, 0 to 2 percent slopes, occasionally flooded, long duration	2,317	0.5
2079D	Menfro-Urban land complex, 8 to 15 percent slopes	744	0.2
2079E	Menfro-Urban land complex, 15 to 25 percent slopes	500	0.1
2183A	Shaffton-Urban land complex, 0 to 2 percent slopes, occasionally flooded	6,329	1.5
2384B	Edwardsville-Urban land complex, 1 to 4 percent slopes	2,842	0.7
2477B	Winfield-Urban land complex, 2 to 8 percent slopes	5,079	1.2
3038B	Rocher loam, 2 to 5 percent slopes, frequently flooded	226	*
3070L	Beaucoup silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration	926	0.2
3076A	Otter silt loam, 0 to 2 percent slopes, frequently flooded	1,115	0.3
3083L	Wabash silty clay, 0 to 2 percent slopes, frequently flooded, long duration	1,506	0.3
3180A	Dupo silt loam, 0 to 2 percent slopes, frequently flooded	1,416	0.3
3288L	Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration	7,314	1.7
3333A	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded	31,924	7.4
3334L	Birds silt loam, 0 to 2 percent slopes, frequently flooded, long duration	3,865	0.9
3336A	Wilbur silt loam, 0 to 2 percent slopes, frequently flooded	736	0.2
3391A	Blake silty clay loam, 0 to 2 percent slopes, frequently flooded	558	0.1
3394A	Haynie silt loam, 0 to 2 percent slopes, frequently flooded	492	0.1
3394B	Haynie silt loam, 2 to 5 percent slopes, frequently flooded	107	*
3415A	Orion silt loam, 0 to 2 percent slopes, frequently flooded	691	0.2
3428A	Coffeen silt loam, 0 to 2 percent slopes, frequently flooded	42	*
3847L	Fluvaquents-Orthents complex, frequently flooded, long duration	1,070	0.2
5079D	Menfro silt loam, karst, 12 to 25 percent slopes, severely eroded	2,614	0.6
5079G	Menfro silt loam, karst, 25 to 60 percent slopes	2,529	0.6
5079C	Menfro silt loam, karst, 4 to 12 percent slopes, severely eroded	790	0.2
8026A	Wagner silt loam, 0 to 2 percent slopes, occasionally flooded	428	*
8070A	Beaucoup silty clay loam, 0 to 2 percent slopes, occasionally flooded	225	*
8071L	Darwin silty clay, 0 to 2 percent slopes, occasionally flooded, long duration	5,659	1.3
8084A	Okaw silt loam, 0 to 2 percent slopes, occasionally flooded	4,629	1.1
8109A	Racoon silt loam, 0 to 2 percent slopes, occasionally flooded	387	*
8122C	Colp silty clay loam, 5 to 10 percent slopes, severely eroded, occasionally flooded	344	*
8122D	Colp silty clay loam, 10 to 18 percent slopes, severely eroded, occasionally flooded	2,068	0.5
8131B	Alvin fine sandy loam, 2 to 5 percent slopes, occasionally flooded	549	0.1
8162A	Gorham silty clay loam, 0 to 2 percent slopes, occasionally flooded	711	0.2
8180A	Dupo silt loam, 0 to 2 percent slopes, occasionally flooded	1,946	0.5
8183A	Shaffton clay loam, 0 to 2 percent slopes, occasionally flooded	3,296	0.8
8284A	Tice silty clay loam, 0 to 2 percent slopes, occasionally flooded	39	*
8304B	Landes very fine sandy loam, 2 to 5 percent slopes, occasionally flooded	2,046	0.5
8338B	Hurst silt loam, 2 to 5 percent slopes, eroded, occasionally flooded	1,108	0.3
8338C	Hurst silty clay loam, 5 to 10 percent slopes, eroded, occasionally flooded	1,626	0.4
8338A	Hurst silt loam, 0 to 2 percent slopes, occasionally flooded	800	0.2
8394A	Haynie silt loam, 0 to 2 percent slopes, occasionally flooded	218	*
8432A	Geff silt loam, 0 to 2 percent slopes, occasionally flooded	572	0.1
8434B	Ridgway silt loam, 2 to 5 percent slopes, occasionally flooded	436	0.1
8436B	Meadowbank silt loam, 2 to 5 percent slopes, occasionally flooded	387	*
8489A	Hurst silt loam, sandy substratum, 0 to 2 percent slopes, occasionally flooded	559	0.1
8524L	Zipp silty clay, 0 to 2 percent slopes, occasionally flooded, long duration	1,065	0.2
8591A	Fults silty clay, 0 to 2 percent slopes, occasionally flooded	2,140	0.5
8592A	Nameoki silty clay, 0 to 2 percent slopes, occasionally flooded	964	0.2
8646A	Fluvaquents, Loamy, 0 to 2 percent slopes, occasionally flooded	1,620	0.4
8812F	Typic Hapludalfs, 18 to 35 percent slopes, occasionally flooded	12	*
	Water	10,123	2.3
	Total	431,330	100

* Less than 0.1 percent.

Table 6.—Main Cropland Limitations and Hazards

(See text for a description of the limitations and hazards listed in this table)

Soil name and map symbol	Cropland limitations and hazards
5C2, 5C3, 5D3: Blair	Crusting, water erosion, wetness.
31A: Pierron	Crusting, low pH, ponding, restricted permeability.
37A: Worthen	None.
37B: Worthen	Water erosion.
46A: Herrick	Wetness.
50A: Virden	Ponding.
75B: Drury	Water erosion.
79B, 79C2, 79D2: Menfro	Crusting, water erosion.
79C3, 79D3: Menfro	Crusting, poor tilth, water erosion.
81A: Littleton	Wetness.
90A: Bethalto	Wetness.
109A: Racoon	Crusting, ponding, restricted permeability.
112A: Cowden	Crusting, ponding, restricted permeability.
113A: Oconee	Crusting, restricted permeability, wetness.
113B: Oconee	Crusting, restricted permeability, water erosion, wetness.
267A: Caseyville	Crusting, wetness.
267B: Caseyville	Crusting, water erosion, wetness.
283B, 283C2: Downsouth	Crusting, water erosion.
384A: Edwardsville	Wetness.
384B: Edwardsville	Water erosion, wetness.
385A: Mascoutah	Ponding, poor tilth.
423A: Millstadt	Crusting, low pH, wetness.
423B: Millstadt	Crusting, low pH, water erosion, wetness.
433A: Floraville	Crusting, low pH, ponding, restricted permeability.
437B, 437C2: Redbud	Crusting, water erosion.
438B, 438C2: Aviston	Water erosion.
441B, 441C2: Wakenda	Water erosion.
466A: Bartelso	Restricted permeability, wetness.
468A: Lakaskia	Ponding, restricted permeability.
477B, 477B2, 477C2: Winfield	Crusting, water erosion.
477C3: Winfield	Crusting, poor tilth, water erosion.
491B2: Ruma	Crusting, poor tilth, water erosion.

Table 6.—Main Cropland Limitations and Hazards—continued

Soil name and map symbol	Cropland limitations and hazards
491C3, 491D3:	
Ruma	Crusting, poor tilth, water erosion.
515C2, 515C3, 515D3:	
Bunkum	Crusting, water erosion, wetness.
517A:	
Marine	Restricted permeability, wetness.
517B:	
Marine	Restricted permeability, water erosion, wetness.
533:	
Urban land	Nonsoil material.
536:	
Dumps	Nonsoil material.
582B, 582B2, 582C2:	
Homen	Crusting, water erosion.
801B:	
Orthents, silty	Crusting, water erosion, wetness.
8026A:	
Wagner	Crusting, flooding, ponding, restricted permeability.
802B:	
Orthents, loamy	Crusting, water erosion.
824B:	
Swanwick	Crusting, poor tilth, restricted permeability, water erosion.
825B:	
Lenzburg, acid substratum	Crusting, low pH, poor tilth, water erosion.
826D:	
Orthents, acid substratum	Crusting, low pH, water erosion, wetness.
878C3:	
Coulterville	Crusting, excessive sodium poor tilth, restricted permeability, water erosion, wetness.
Grantfork	Crusting, excessive sodium high pH, poor tilth, restricted permeability, water erosion, wetness.
880B2:	
Coulterville	Crusting, excessive sodium restricted permeability, water erosion, wetness.
Darmstadt	Crusting, excessive sodium high pH, restricted permeability, water erosion, wetness.
882A:	
Oconee	Crusting, restricted permeability, wetness.
Darmstadt	Crusting, excessive sodium high pH, restricted permeability, wetness.
Coulterville	Crusting, excessive sodium restricted permeability, wetness.
882B:	
Oconee	Crusting, restricted permeability, water erosion, wetness.
Coulterville	Crusting, excessive sodium restricted permeability, water erosion, wetness.
Darmstadt	Crusting, excessive sodium high pH, restricted permeability, water erosion, wetness.
884C3:	
Bunkum	Crusting, water erosion, wetness.
Coulterville	Crusting, excessive sodium poor tilth, restricted permeability, water erosion, wetness.

Table 6.—Main Cropland Limitations and Hazards—continued

Soil name and map symbol	Cropland limitations and hazards
885A:	
Virden	Ponding.
Fosterburg	Excessive sodium ponding, restricted permeability.
894A:	
Herrick	Wetness.
Biddle	Excessive sodium restricted permeability, wetness.
Piasa	Excessive sodium high pH, ponding, restricted permeability.
897D3:	
Bunkum	Crusting, poor tilth, water erosion, wetness.
Atlas	Crusting, poor tilth, water erosion, wetness.
906C3:	
Redbud	Crusting, poor tilth, water erosion.
Hurst	Crusting, low pH, poor tilth, restricted permeability, water erosion, wetness.
993A:	
Cowden	Crusting, ponding, restricted permeability.
Piasa	Excessive sodium high pH, ponding, restricted permeability.
3038B:	
Rocher	Excessive permeability flooding, water erosion.
3070L:	
Beaucoup	Flooding, ponding, poor tilth.
3076A:	
Otter	Flooding, ponding.
3180A:	
Dupo	Flooding, restricted permeability, wetness.
3288L:	
Petrolia	Crusting, flooding, ponding, poor tilth.
3333A:	
Wakeland	Flooding, wetness.
3334L:	
Birds	Crusting, flooding, ponding.
3336A:	
Wilbur	Flooding.
3394A:	
Haynie	Crusting, flooding.
3394B:	
Haynie	Crusting, flooding, water erosion.
3415A:	
Orion	Flooding, wetness.
3428A:	
Coffeen	Crusting, flooding, wetness.
5079C, 5079D:	
Menfro, karst	Crusting, water erosion.
8070A:	
Beaucoup	Flooding, ponding, poor tilth.
8071L:	
Darwin	Flooding, ponding, poor tilth, restricted permeability.
8084A:	
Okaw	Crusting, flooding, low pH, ponding, restricted permeability.
8109A:	
Racoon	Crusting, flooding, ponding, restricted permeability.
8122C:	
Colp	Crusting, flooding, poor tilth, restricted permeability, water erosion, wetness.

Table 6.—Main Cropland Limitations and Hazards—continued

Soil name and map symbol	Cropland limitations and hazards
8131B: Alvin	Excessive permeability flooding, water erosion.
8162A: Gorham	Excessive permeability flooding, ponding, poor tilth.
8180A: Dupo	Flooding, restricted permeability, wetness.
8183A: Shaffton	Excessive permeability flooding, poor tilth, wetness.
8284A: Tice	Flooding, poor tilth, wetness.
8304B: Landes	Excessive permeability flooding, water erosion.
8338A: Hurst	Crusting, flooding, low pH, restricted permeability, wetness.
8338B: Hurst	Crusting, flooding, low pH, restricted permeability, water erosion, wetness.
8338C: Hurst	Crusting, flooding, low pH, poor tilth, restricted permeability, water erosion, wetness.
8394A: Haynie	Crusting, flooding.
8432A: Geff	Crusting, excessive permeability flooding, wetness.
8434B: Ridgway	Crusting, excessive permeability flooding, water erosion.
8436B: Meadowbank	Excessive permeability flooding, water erosion.
8489A: Hurst, sandy substratum	Crusting, flooding, low pH, restricted permeability, wetness.
8524L: Zipp	Crusting, flooding, poor tilth, restricted permeability, ponding.
8591A: Fults	Flooding, ponding, poor tilth, restricted permeability.
8592A: Nameoki	Flooding, poor tilth, restricted permeability, wetness.

Table 7.–Land Capability and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability	Corn	Soybeans	Wheat, winter	Orchardgrass-alfalfa hay	Bromegrass-alfalfa
		Bu	Bu	Bu	Tons	AUM*
5C2 Blair	3E	89	31	41	3.5	5.8
5C3 Blair	4E	82	29	38	3.2	5.4
5D3 Blair	4E	78	27	36	3.0	5.0
8F2 Hickory	6E	---	---	---	2.0	3.4
31A Pierron	3W	100	30	42	3.7	6.2
37A Worthen	1	151	46	62	5.9	9.8
37B Worthen	2E	149	46	61	5.8	9.7
46A Herrick	2W	141	45	61	5.5	9.2
50A Virden	2W	144	46	60	---	---
75B Drury	2E	125	40	56	4.9	8.2
79B Menfro	2E	127	39	53	5.1	8.6
79C2 Menfro	3E	120	37	51	4.9	8.1
79C3 Menfro	4E	111	34	47	4.5	7.5
79D2 Menfro	4E	115	35	49	4.6	7.6
79D3 Menfro	4E	106	32	45	4.2	7.0
79F Menfro	6E	---	---	---	3.7	6.2
79F3 Menfro	7E	---	---	---	3.2	5.3
79G Menfro	7E	---	---	---	---	---
81A Littleton	1	159	50	63	6.1	10.2
90A Bethalto	2W	149	44	60	5.6	9.3
109A Racoon	3W	108	35	48	4.1	6.8
112A Cowden	3W	120	37	53	4.8	8.0
113A Oconee	2W	120	36	54	5.0	8.3
113B Oconee	2E	119	36	53	4.9	8.2

See footnote at end of table.

Table 7.–Land Capability and Yields per Acre of Crops and Pasture–continued

Map symbol and soil name	Land capability	Corn	Soybeans	Wheat, winter	Orchardgrass-alfalfa hay	Bromegrass-alfalfa
		Bu	Bu	Bu	Tons	AUM*
267A Caseyville------	2W	134	41	54	5.2	8.7
267B Caseyville------	2E	133	41	53	5.1	8.6
283B Downsouth-------	2E	146	43	57	5.4	9.1
283C2 Downsouth-------	3E	138	40	55	5.2	8.6
384A Edwardsville----	1	163	48	62	6.1	10.2
384B Edwardsville----	2E	161	48	61	6.0	10.1
385A Mascoutah-------	2W	152	48	57	---	---
423A Millstadt-------	2W	118	30	43	4.6	7.7
423B Millstadt-------	2E	117	30	43	4.5	7.6
433A Floraville------	3W	103	31	42	3.8	6.3
437B Redbud----------	2E	115	36	50	5.0	8.4
437C2 Redbud----------	3E	109	34	47	4.8	7.9
438B Aviston---------	2E	143	45	60	5.4	9.1
438C2 Aviston---------	3E	135	42	57	5.2	8.6
441B Wakenda---------	2E	148	45	57	4.9	8.2
441C2 Wakenda---------	3E	140	42	55	4.7	7.8
466A Bartelso--------	2W	122	42	51	4.6	7.7
468A Lakaskia--------	3W	118	40	48	---	---
477B Winfield--------	2E	127	40	52	4.9	8.1
477B2 Winfield--------	2E	123	38	51	4.7	7.8
477C2 Winfield--------	3E	120	38	50	4.6	7.7
477C3 Winfield--------	4E	111	35	46	4.3	7.1
491B2 Ruma------------	2E	117	34	51	4.8	8.0
491C3 Ruma------------	4E	106	30	46	4.4	7.2

See footnote at end of table.

Table 7.–Land Capability and Yields per Acre of Crops and Pasture–continued

Map symbol and soil name	Land capability	Corn	Soybeans	Wheat, winter	Orchardgrass-alfalfa hay	Bromegrass-alfalfa
		Bu	Bu	Bu	Tons	AUM*
491D3 Ruma	4E	101	29	44	4.0	6.7
515C2 Bunkum	3E	93	35	44	3.6	6.0
515C3 Bunkum	4E	86	32	41	3.3	5.5
515D3 Bunkum	4E	82	31	39	3.1	5.1
517A Marine	2W	102	30	43	3.6	7.2
517B Marine	2E	101	30	43	3.6	7.1
582B Homen	2E	101	34	48	4.1	6.8
582B2 Homen	2E	98	33	46	3.9	6.6
582C2 Homen	3E	96	32	45	3.8	6.4
585F2 Negley	6E	---	---	---	3.8	4.1
801B, 801D Orthents, silty	---	---	---	---	---	---
802B, 802D Orthents, loamy	---	---	---	---	---	---
821G Morristown	7E	---	---	---	---	---
824B Swanwick	2E	78	28	30	3.1	5.2
825B Lenzburg, acid substratum	2E	68	21	23	3.0	5.0
826D Orthents, acid substratum	---	---	---	---	---	---
871B Lenzburg	2S	74	23	26	3.4	5.4
871D Lenzburg	6S	---	---	---	3.1	5.0
871G Lenzburg	7E	---	---	---	---	2.8
878C3 Coulterville	4E	72	24	32	2.6	4.6
Grantfork	4E					
880B2 Coulterville	2E	87	30	39	3.2	5.3
Darmstadt	3E					

See footnote at end of table.

Table 7.—Land Capability and Yields per Acre of Crops and Pasture—continued

Map symbol and soil name	Land capability	Corn	Soybeans	Wheat, winter	Orchardgrass-alfalfa hay	Bromegrass-alfalfa
		Bu	Bu	Bu	Tons	AUM*
882A						
Oconee	2W	102	33	47	4.1	7.0
Darmstadt	3W					
Coulterville	2W					
882B						
Oconee	2E	104	33	47	4.1	7.1
Coulterville	2E					
Darmstadt	3E					
884C3						
Bunkum	4E	88	31	40	3.2	5.6
Coulterville	4E					
885A						
Virden	2W	136	42	58	---	---
Fosterburg	3W					
886F3						
Ruma	7E	---	---	---	2.0	3.3
Ursa	7E					
894A						
Herrick	2W	121	39	54	4.8	8.0
Biddle	2W					
Piasa	4W					
897D3						
Bunkum	4E	62	22	27	2.4	4.0
Atlas	4E					
906C3						
Redbud	4E	79	26	36	3.4	5.7
Hurst	4E					
907D3						
Redbud	4E	74	24	33	3.1	5.2
Colp	4E					
962F2						
Sylvan	6E	---	---	---	---	5.0
Bold	6E					
962G						
Sylvan	7E	---	---	---	---	---
Bold	7E					
993A						
Cowden	3W	98	32	45	---	---
Piasa	4W					
1071A						
Darwin, undrained	7W	---	---	---	---	---
1248A						
McFain, undrained	7W	---	---	---	---	---

See footnote at end of table.

Table 7.--Land Capability and Yields per Acre of Crops and Pasture--continued

Map symbol and soil name	Land capability	Corn	Soybeans	Wheat, winter	Orchardgrass-alfalfa hay	Bromegrass-alfalfa
		Bu	Bu	Bu	Tons	AUM*
1288A Petrolia, undrained	7W	---	---	---	---	---
3038B Rocher	3W	87	31	40	---	---
3070L Beaucoup	4W	97	32	---	---	---
3076A Otter	3W	129	41	---	---	---
3083L Wabash	4W	74	24	---	---	---
3180A Dupo	3W	119	39	50	4.7	7.8
3288L Petrolia	3W	92	30	34	---	---
3333A Wakeland	3W	122	40	51	4.7	7.8
3334L Birds	4W	85	24	---	---	---
3336A Wilbur	3W	121	40	50	4.5	7.5
3391A Blake	3W	88	24	39	---	---
3394A Haynie	3W	86	32	38	---	---
3394B Haynie	3W	85	32	38	---	---
3415A Orion	3W	122	39	47	4.2	7.0
3428A Coffeen	3W	137	42	51	5.2	8.7
3847L Fluvaquents	---	---	---	---	---	---
Orthents	---					
5079D Menfro, karst	4E	106	32	45	4.2	7.0
5079G Menfro, karst	7E	---	---	---	---	---
5079C Menfro, karst	4E	111	34	47	4.5	7.5
8026A Wagner	3W	106	35	49	---	---
8070A Beaucoup	2W	138	46	55	---	---
8071L Darwin	4W	84	30	40	---	---
8084A Okaw	3W	84	28	41	---	---

See footnote at end of table.

Table 7.--Land Capability and Yields per Acre of Crops and Pasture--continued

Map symbol and soil name	Land capability	Corn	Soybeans	Wheat, winter	Orchardgrass-alfalfa hay	Bromegrass-alfalfa
		Bu	Bu	Bu	Tons	AUM*
8109A Racoon	3W	108	35	48	---	---
8122C Colp	4E	65	24	33	2.7	4.6
8122D Colp	4E	59	22	30	2.5	4.1
8131B Alvin	2E	98	37	47	4.1	6.8
8162A Gorham	2W	141	46	56	---	---
8180A Dupo	2W	132	43	55	5.2	8.7
8183A Shaffton	2W	130	43	52	5.0	8.3
8284A Tice	2W	153	47	61	5.7	9.5
8304B Landes	2E	98	34	45	3.7	6.1
8338A Hurst	2W	87	32	45	3.6	6.0
8338B Hurst	2E	82	30	42	3.4	5.6
8338C Hurst	3E	79	29	41	3.3	5.5
8394A Haynie	2W	96	36	42	3.6	6.0
8432A Geff	2W	105	35	44	4.5	7.5
8434B Ridgway	2E	118	38	49	4.6	7.6
8436B Meadowbank	2E	142	43	57	5.3	8.9
8489A Hurst, sandy substratum	2W	73	25	25	3.1	5.2
8524L Zipp	4W	98	33	35	---	---
8591A Fults	3W	110	39	43	---	---
8592A Nameoki	2W	125	44	50	5.0	8.2
8646A Fluvaquents, loamy	---	---	---	---	---	---
8812F Typic Hapludalfs	6E	---	---	---	---	---

* Animal unit month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Table 8.—Main Pasture Limitations and Hazards

(See text for a description of the limitations and hazards listed in this table)

Soil name and map symbol	Pasture limitations and hazards
5C2, 5C3: Blair	Low pH, water erosion.
5D3: Blair	Equipment limitation, low pH, water erosion.
8F2: Hickory	Equipment limitation, low pH, water erosion.
31A: Pierron	Low pH, ponding, wetness.
75B: Drury	Water erosion.
79B, 79C2: Menfro	Low pH, water erosion.
79C3: Menfro	Low fertility, low pH, water erosion.
79D2, 79F: Menfro	Equipment limitation, low pH, water erosion.
79D3, 79F3: Menfro	Equipment limitation, low fertility, low pH, water erosion.
90A: Bethalto	Low pH.
109A: Racoon	Low pH, ponding, wetness.
112A: Cowden	Low pH, ponding, wetness.
113A: Oconee	Low pH.
113B: Oconee	Low pH, water erosion.
267A: Caseyville	Low pH.
267B: Caseyville	Low pH, water erosion.
283B, 283C2: Downsouth	Low pH, water erosion.
423A: Millstadt	Low pH.
423B: Millstadt	Low pH, water erosion.
433A: Floraville	Low pH, ponding, wetness.
437B, 43C2: Redbud	Low pH, water erosion.
438C2: Aviston	Low pH, water erosion.
441C2: Wakenda	Water erosion.
477B, 477B2, 477C2, 477C3: Winfield	Low pH, water erosion. water erosion.
491B2, 491C3: Ruma	Low fertility, low pH, water erosion.
491D3: Ruma	Equipment limitation, low fertility, low pH, water erosion.
515C2, 515C3: Bunkum	Low pH, water erosion.
515D3: Bunkum	Equipment limitation, low pH, water erosion.
517A: Marine	Low pH.
517B: Marine	Low pH, water erosion.
582B, 582B2, 582C2: Homen	Low pH, water erosion.
585F2: Negley	Equipment limitation, low pH, water erosion.
801B: Orthents, silty	Low fertility, low pH, water erosion.

Table 8.—Main Pasture Limitations and Hazards—continued

Soil name and map symbol	Pasture limitations and hazards
801D:	
Orthents, silty	Equipment limitation, low fertility, low pH, water erosion.
802B:	
Orthents, loamy	Low fertility, water erosion.
802D:	
Orthents, loamy	Equipment limitation, low fertility, water erosion.
824B:	
Swanwick	Low fertility, low pH, water erosion.
825B:	
Lenzburg, acid substratum	Low fertility, low pH, water erosion.
826D:	
Orthents, acid substratum	Equipment limitation, low fertility, low pH, water erosion.
871B:	
Lenzburg	Gravelly, water erosion.
871D:	
Lenzburg	Equipment limitation, gravelly, water erosion.
878C3:	
Coulterville	Low fertility, low pH, water erosion.
Grantfork	High pH, low fertility, low pH, water erosion.
880B2:	
Coulterville	Low fertility, low pH, water erosion.
Darmstadt	High pH, low pH, water erosion.
882A:	
Oconee	Low pH.
Darmstadt	High pH low pH.
Coulterville	Low fertility, low pH.
882B:	
Oconee	Low pH, water erosion.
882B:	
Coulterville	Low fertility, low pH, water erosion.
Darmstadt	High pH, low pH, water erosion.
884C3:	
Bunkum	Low pH, water erosion.
Coulterville	Low fertility, low pH, water erosion.
894A:	
Piasa	High pH, ponding, wetness.
897D3:	
Bunkum	Equipment limitation, low pH, water erosion.
Atlas	Equipment limitation, low fertility, low pH, water erosion.
906C3:	
Redbud	Low fertility, low pH, water erosion.
Hurst	Low fertility, low pH, water erosion.
907D3:	
Redbud	Equipment limitation, low fertility, low pH, water erosion.
Colp	Equipment limitation, low fertility, low pH, water erosion.
962F2:	
Sylvan	Equipment limitation, water erosion.
Bold	Equipment limitation, water erosion.
993A:	
Cowden	Low pH, ponding, wetness.
Piasa	High pH, ponding, wetness.
1288A:	
Petrolia, undrained	Flooding, ponding.

Table 8.—Main Pasture Limitations and Hazards—continued

Soil name and map symbol	Pasture limitations and hazards
3038B: Rocher	Flooding, low fertility, water erosion.
3180A: Dupo	Flooding.
3288L: Petrolia	Flooding, ponding.
3333A: Wakeland	Flooding.
3334L: Birds	Flooding, low pH, ponding, wetness.
3336A: Wilbur	Flooding.
3391A: Blake	Flooding.
3394A: Haynie	Flooding.
3394B: Haynie	Flooding, water erosion.
3415A: Orion	Flooding.
3847L: Fluvaquents	Flooding, ponding.
Orthents	Equipment limitation, low fertility, water erosion.
5079C: Menfro, karst	Equipment limitation, low pH, water erosion.
5079D: Menfro, karst	Equipment limitation, low pH, water erosion.
8026A: Wagner	Flooding, low pH, ponding, wetness.
8084A: Okaw	Flooding, low pH, ponding, wetness.
8109A: Racoon	Flooding, low pH, ponding, wetness.
8122C: Colp	Flooding, low fertility, low pH, water erosion.
8122D: Colp	Equipment limitation, flooding, low fertility, low pH, water erosion.
8131B: Alvin	Flooding, low fertility, low pH, water erosion.
8180A: Dupo	Flooding.
8338A: Hurst	Flooding, low pH.
8338B: Hurst	Flooding, low pH, water erosion.
8338C: Hurst	Flooding, low fertility, low pH, water erosion.
8394A: Haynie	Flooding.
8432A: Geff	Flooding, low pH.
8434B: Ridgway	Flooding, low pH, water erosion.
8489A: Hurst, sandy substratum	Flooding, low pH.
8524L: Zipp	Flooding, wetness.
8646A: Fluvaquents, loamy	Flooding, ponding.
8812F: Typic Hapludalfs	Equipment limitation, flooding, low pH, water erosion.

Table 9.–Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name)

Map symbol	Soil name
37A	Worthen silt loam, 0 to 2 percent slopes
37B	Worthen silt loam, 2 to 5 percent slopes
46A	Herrick silt loam, 0 to 2 percent slopes
50A	Virden silt loam, 0 to 2 percent slopes (where drained)
75B	Drury silt loam, 2 to 5 percent slopes
79B	Menfro silt loam, 2 to 5 percent slopes
81A	Littleton silt loam, 0 to 2 percent slopes
90A	Bethalto silt loam, 0 to 2 percent slopes (where drained)
109A	Racoon silt loam, 0 to 2 percent slopes (where drained)
112A	Cowden silt loam, 0 to 2 percent slopes (where drained)
113A	Oconee silt loam, 0 to 2 percent slopes (where drained)
113B	Oconee silt loam, 2 to 5 percent slopes (where drained)
267A	Caseyville silt loam, 0 to 2 percent slopes (where drained)
267B	Caseyville silt loam, 2 to 5 percent slopes (where drained)
283B	Downsouth silt loam, 2 to 5 percent slopes
384A	Edwardsville silt loam, 0 to 2 percent slopes
384B	Edwardsville silt loam, 2 to 5 percent slopes
385A	Mascoutah silty clay loam, 0 to 2 percent slopes (where drained)
423A	Millstadt silt loam, 0 to 2 percent slopes (where drained)
423B	Millstadt silt loam, 2 to 5 percent slopes (where drained)
437B	Redbud silt loam, 2 to 5 percent slopes
438B	Aviston silt loam, 2 to 5 percent slopes
441B	Wakenda silt loam, 2 to 5 percent slopes
466A	Bartelso silt loam, 0 to 2 percent slopes
468A	Lakaskia silt loam, 0 to 2 percent slopes (where drained)
477B	Winfield silt loam, 2 to 5 percent slopes
477B2	winfield silt loam, 2 to 5 percent slopes, eroded
491B2	Ruma silty clay loam, 2 to 5 percent slopes, eroded
517A	Marine silt loam, 0 to 2 percent slopes (where drained)
517B	Marine silt loam, 2 to 5 percent slopes (where drained)
582B	Homen silt loam, 2 to 5 percent slopes
582B2	Homen silt loam, 2 to 5 percent slopes, eroded
824B	Swanwick silty clay loam, 1 to 5 percent slopes
885A	Virden-Fosterburg silt loams, 0 to 2 percent slopes (where drained)
3038B	Rocher loam, 2 to 5 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
3070L	Beaucoup silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration (where drained and protected from flooding or not frequently flooded during the growing season)
3076A	Otter silt loam, 0 to 2 percent slopes, frequently flooded (where drained and protected from flooding or not frequently flooded during the growing season)
3180A	Dupo silt loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
3288L	Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration (where drained and protected from flooding or not frequently flooded during the growing season)
3333A	Wakeland silt loam, 0 to to percent slopes, frequently flooded (where drained and protected from flooding or not frequently flooded during the growing season)
3334L	Birds silt loam, 0 to 2 percent slopes, frequently flooded, long duration (where drained and protected from flooding or not frequently flooded during the growing season)
3336A	Wilbur silt loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
3391A	Blake silty clay loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
3394A	Haynie silt loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
3394B	Haynie silt loam, 2 to 5 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
3415A	Orion silt loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
3428A	Coffeen silt loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
8070A	Beaucoup silty clay loam, 0 to 2 percent slopes, occasionally flooded (where drained)
8109A	Racoon silt loam, 0 to 2 percent slopes, occasionally flooded (where drained)
8131B	Alvin fine sandy loam, 2 to 5 percent slopes, occasionally flooded
8162A	Gorham silty clay loam, 0 to 2 percent slopes, occasionally flooded (where drained)
8180A	Dupo silt loam, 0 to 2 percent slopes, occasionally flooded
8183A	Shaffton clay loam, 0 to 2 percent slopes, occasionally flooded
8284A	Tice silty clay loam, 0 to 2 percent slopes, occasionally flooded
8304B	Landes very fine sandy loam, 2 to 5 percent slopes, occasionally flooded
8394A	Haynie silt loam, 0 to 2 percent slopes, occasionally flooded
8432A	Geff silt loam, 0 to 2 percent slopes, occasionally flooded
8434B	Ridgway silt loam, 2 to 5 percent slopes, occasionally flooded
8436B	Meadowbank silt loam, 2 to 5 percent slopes, occasionally flooded

Table 10.—Windbreaks and Environmental Plantings

(The symbol < means less than; > means more than. Absence of an entry indicates that trees generally do not grow to the given height on that soil)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
5C2, 5C3, 5D3: Blair	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
8F2: Hickory	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
31A: Pierron	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
37A, 37B: Worthen	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
46A: Herrick	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
50A: Virden	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, witchhazel, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
75B: Drury	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.

Table 10.—Windbreaks and Environmental Plantings—continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
79B, 79C2, 79C3, 79D2, 79D3, 79F, 79F3, 79G: Menfro	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
81A: Littleton	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
90A: Bethalto	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
109A: Racoon	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, witchhazel, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
112A: Cowden	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
113A, 113B: Oconee	Black chokeberry, gray dogwood, American plum, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, hazel, Washington hawthorn, Iowa crab, nannyberry viburnum, blackhaw.	Green ash, eastern redcedar, baldcypress.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
267A, 267B: Caseyville	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.

Table 10.--Windbreaks and Environmental Plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
283B, 283C2: Downsouth-------	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
384A: Edwardsville----	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, American plum, southern blackhaw.	Washington hawthorn, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
384B: Edwardsville----	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
385A: Mascoutah-------	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
423A, 423B: Millstadt-------	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
433A: Floraville------	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
437B, 437C2: Redbud----------	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.

Table 10.—Windbreaks and Environmental Plantings—continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
438B, 438C2: Aviston	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
441B, 441C2: Wakenda	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
466A: Bartelso	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
468A: Lakaskia	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
477B, 477B2, 477C2, 477C3: Winfield	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
491B2, 491C3, 491D3: Ruma	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
515C2, 515C3, 515D3: Bunkum	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.

Table 10.—Windbreaks and Environmental Plantings—continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
517A, 517B: Marine	Black chokeberry, gray dogwood, American plum, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, hazel, Washington hawthorn, Iowa crab, nannyberry viburnum, blackhaw.	Green ash, eastern redcedar, baldcypress.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
582B, 582B2, 582C2: Homen	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
585F2: Negley	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
801B, 801D: Orthents, silty	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
802B, 802D: Orthents, loamy	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
821G: Morristown	Black chokeberry, gray dogwood, American plum, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, alternateleaf dogwood, hazel, eastern redcedar Iowa crab, nannyberry viburnum.	Green ash, eastern white pine.	---	---
824B: Swanwick	Black chokeberry, gray dogwood, American plum, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, hazel, Washington hawthorn, Iowa crab, nannyberry viburnum, blackhaw.	Green ash, eastern redcedar, baldcypress.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.

Table 10.—Windbreaks and Environmental Plantings—continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
825B:					
Lenzburg, acid substratum	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
826D:					
Orthents, acid substratum	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, eastern redcedar, Iowa crab, American plum, blackhaw.	Shadbush, green ash, nannyberry viburnum.	Hackberry, yellow-poplar, Norway spruce, eastern white pine, baldcypress	Eastern cottonwood, pin oak.
871B, 871D					
871G:					
Lenzburg	Black chokeberry, gray dogwood, American plum, mapleleaf arrowwood, blackhaw.	Shadbush, cock's-spur hawthorn, eastern redcedar, Iowa crab, eastern white pine, nannyberry viburnum.	Thornless honey locust, black locust.	---	---
878C3:					
Coulterville	Common juniper.	Shadbush, hazel, common winterberry, eastern redcedar, Iowa crab.	Green ash, eastern white pine.	Blue spruce, Douglas-fir, black locust.	---
Grantfork	Common juniper.	Shadbush, hazel, common winterberry, eastern redcedar, Iowa crab.	Green ash, eastern white pine.	Blue spruce, Douglas-fir, black locust.	---
880B2:					
Coulterville	Common juniper.	Shadbush, hazel, common winterberry, eastern redcedar, Iowa crab.	Green ash, eastern white pine.	Blue spruce, Douglas-fir, black locust.	---
Darmstadt	Common juniper.	Shadbush, hazel, common winterberry, eastern redcedar, Iowa crab.	Green ash, eastern white pine.	Blue spruce, Douglas-fir, black locust.	---

Table 10.—Windbreaks and Environmental Plantings—continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
882A, 882B:					
Oconee	Black chokeberry, gray dogwood, American plum, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, hazel, Washington hawthorn, Iowa crab, nannyberry viburnum, blackhaw.	Green ash, eastern redcedar, baldcypress.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
Darmstadt	Common juniper.	Shadbush, hazel, common winterberry, eastern redcedar, Iowa crab.	Green ash, eastern white pine.	Blue spruce, Douglas-fir, black locust.	---
Coulterville	Common juniper.	Shadbush, hazel, common winterberry, eastern redcedar, Iowa crab.	Green ash, eastern white pine.	Blue spruce, Douglas-fir, black locust.	---
884C3:					
Bunkum	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
Coulterville	Common juniper.	Shadbush, hazel, common winterberry, eastern redcedar, Iowa crab.	Green ash, eastern white pine.	Blue spruce, Douglas-fir, black locust.	---
885A:					
Virden	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
885A:					
Fosterburg	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
886F3:					
Ruma	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar. nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
Ursa	Black chokeberry, gray dogwood, American plum, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, hazel, Washington hawthorn, Iowa crab, nannyberry viburnum, blackhaw.	Green ash, eastern redcedar, baldcypress.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.

Table 10.—Windbreaks and Environmental Plantings—continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
894A:					
Herrick----------	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
Biddle-----------	Common juniper.	Shadbush, hazel, common winterberry, eastern redcedar, Iowa crab.	Green ash, eastern white pine.	Blue spruce, Douglas-fir, black locust.	---
Piasa------------	Common juniper.	Shadbush, hazel, common winterberry, eastern redcedar, Iowa crab.	Green ash, eastern white pine.	Blue spruce, Douglas-fir, black locust.	---
897D3:					
Bunkum-----------	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
Atlas------------	Black chokeberry, gray dogwood, American plum, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, hazel, Washington hawthorn, Iowa crab, nannyberry viburnum, blackhaw.	Green ash, eastern redcedar, baldcypress.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
906C3:					
Redbud-----------	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
Hurst------------	Black chokeberry, gray dogwood, American plum, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, hazel, Washington hawthorn, Iowa crab, nannyberry viburnum, blackhaw.	Green ash, eastern redcedar, baldcypress.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.

Table 10.--Windbreaks and Environmental Plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
907D3:					
Redbud	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
Colp	Black chokeberry, gray dogwood, American plum, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, hazel, Washington hawthorn, Iowa crab, nannyberry viburnum, blackhaw.	Green ash, eastern redcedar, baldcypress.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
962F2, 962G:					
Sylvan	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
Bold	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
993A:					
Cowden	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
Piasa	Common juniper.	Shadbush, hazel, common winterberry, eastern redcedar, Iowa crab.	Green ash, eastern white pine.	Blue spruce, Douglas-fir, black locust.	---
1071A:					
Darwin, undrained	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
1248A:					
McFain, undrained	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.

Table 10.—Windbreaks and Environmental Plantings—continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
1288A: Petrolia, Undrained	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
2071L: Darwin	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
2079D, 2079E: Menfro	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
2183A: Shaffton	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
2384B: Edwardsville	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
2477B: Winfield	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
3038B: Rocher	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.

Table 10.—Windbreaks and Environmental Plantings—continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
3070L:					
Beaucoup	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
3076A:					
Otter	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
3083L:					
Wabash	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
3180A:					
Dupo	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum.	Eastern redcedar, southern red oak, nannyberry viburnum, southern black haw.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
3288L:					
Petrolia	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
3333A:					
Wakeland	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
3334L:					
Birds	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.

Table 10.—Windbreaks and Environmental Plantings—continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
3336A: Wilbur	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
3391A: Blake	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, green ash, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
3394A, 3394B: Haynie	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
3415A: Orion	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
3428A: Coffeen	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
5079C, 5079D, 5079G: Menfro, karst	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
8026A: Wagner	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.

Table 10.—Windbreaks and Environmental Plantings—continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
8070A: Beaucoup	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
8071L: Darwin	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
8084A: Okaw	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
8109A: Racoon	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
8122C, 8122D: Colp	Black chokeberry, gray dogwood, American plum, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, hazel, Washington hawthorn, Iowa crab, nannyberry viburnum, blackhaw.	Green ash, eastern redcedar, baldcypress.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
8131B: Alvin	Black chokeberry, gray dogwood, common winterberry, American plum, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, hazel, red haw, witchhazel, Iowa crab, blackhaw.	Green ash, eastern redcedar, yellow-poplar, southern red oak, baldcypress.	Hackberry, Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
8162A: Gorham	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.

Table 10.—Windbreaks and Environmental Plantings—continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
8180A:					
Dupo	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, green ash, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
8183A:					
Shaffton	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, green ash, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
8284A:					
Tice	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, green ash, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
8304B:					
Landes	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, green ash, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress	Eastern white pine, eastern cottonwood, pin oak.
8338A, 8338B, 8338C:					
Hurst	Black chokeberry, gray dogwood, American plum, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, hazel, Washington hawthorn, Iowa crab, nannyberry viburnum, blackhaw.	Green ash, eastern redcedar, baldcypress.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
8394A:					
Haynie	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, green ash, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
8432A:					
Geff	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, green ash, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.

Table 10.—Windbreaks and Environmental Plantings—continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
8434B: Ridgway	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
8436B: Meadowbank	Gray dogwood, red-osier dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, hazel, Iowa crab, American plum, blackhaw.	Shadbush, eastern redcedar, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.
8489A: Hurst, sandy substratum	Black chokeberry, gray dogwood, American plum, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, hazel, Washington hawthorn, Iowa crab, nannyberry viburnum, blackhaw.	Green ash, eastern redcedar, baldcypress.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
8524L: Zipp	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
8591A: Fults	Black chokeberry, gray dogwood, indiancurrant coralberry, mapleleaf arrowwood.	Roughleaf dogwood, Iowa crab, American plum, nannyberry viburnum, blackhaw.	Shadbush, hackberry, eastern redcedar.	Green ash, yellow-poplar, Norway spruce, eastern white pine, southern red oak, baldcypress.	Eastern cottonwood, pin oak.
8592A: Nameoki	Black chokeberry, silky dogwood, common winterberry, indiancurrant coralberry, mapleleaf arrowwood.	Shadbush, Iowa crab, American plum, southern blackhaw.	Washington hawthorn, green ash, eastern redcedar, southern red oak, nannyberry viburnum.	Hackberry, green ash, yellow-poplar, Norway spruce, baldcypress.	Eastern white pine, eastern cottonwood, pin oak.

Table 11.—Forestland Management and Productivity

(Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available)

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Suggested trees to plant
									m3/ha	
5C2: Blair	4A	Slight	Slight	Slight	Slight	Slight	White oak	70	4	Pecan, green ash, white oak, bur oak, northern red oak, black oak.
							Bur oak	70	4	
							Northern red oak	70	4	
							Black oak	---	---	
							Green ash	---	---	
5C3, 5D3: Blair	4A	Slight	Slight	Slight	Slight	Slight	White oak	70	4	Pecan, green ash, white oak, bur oak, northern red oak, black oak.
							Bur oak	70	4	
							Northern red oak	70	4	
							Green ash	---	---	
8F2: Hickory	5R	Moderate	Moderate	Slight	Slight	Moderate	White oak	85	5	Northern red oak, Green ash, white oak, bur oak, sugar maple, yellow-poplar.
							Northern red oak	85	5	
							Bitternut hickory	---	---	
							Green ash	---	---	
							Black oak	---	---	
75B: Drury	5A	Slight	Slight	Slight	Slight	Moderate	White oak	85	5	Black walnut, white oak, northern red oak, pecan.
							Northern red oak	85	5	
							Green ash	---	---	
							Sweetgum	---	---	
79B, 79C2, 79C3, 79D2, 79D3: Menfro	4A	Slight	Slight	Slight	Slight	Severe	Northern red oak	81	4	Bur oak, green ash, black walnut, yellow-poplar, white oak, sugar maple.
							White ash	70	5	
							Black oak	73	4	
							Sugar maple	68	5	
							White oak	59	3	
79F, 79F3: Menfro	4R	Moderate	Moderate	Slight	Slight	Severe	Northern red oak	81	4	Bur oak, green ash, black walnut, yellow-poplar, white oak, sugar maple.
							White ash	70	5	
							Black oak	73	4	
							Sugar maple	68	5	
							White oak	59	3	
79G: Menfro	4R	Severe	Severe	Slight	Slight	Severe	Northern red oak	81	4	Bur oak, green ash, black walnut, white oak, sugar maple.
							White ash	70	5	
							Black oak	73	4	
							Sugar maple	68	5	
							White oak	59	3	
90A: Bethalto	4A	Slight	Slight	Slight	Slight	Moderate	White oak	70	4	Green ash, northern red oak, white oak, yellow-poplar, bur oak.
							Green ash	---	---	
							Northern red oak	---	---	
109A: Racoon	4W	Slight	Severe	Severe	Severe	Severe	Pin oak	80	4	Swamp white oak, bur oak, pin oak, green ash, water tupelo, baldcypress.
							White oak	---	---	
							Post oak	80	4	
							Green ash	---	---	

Table 11.–Forestland Management and Productivity–continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Suggested trees to plant
									m3/ha	
267A, 267B Caseyville	4A	Slight	Slight	Slight	Slight	Severe	White oak	75	4	White oak, northern red oak, green ash, yellow-poplar, pecan.
283B, 283C2: Downsouth	4A	Slight	Slight	Slight	Slight	Moderate	White oak Northern red oak	70 ---	4 ---	Green ash, white oak, northern red oak, yellow-poplar, shagbark hickory.
423A: Millstadt	4A	Slight	Slight	Moderate	Moderate	Moderate	Northern red oak Shagbark hickory Post oak	70 --- 70	4 --- 4	White ash, white oak, bur oak, northern red oak.
423B: Millstadt	4A	Slight	Slight	Moderate	Moderate	Moderate	Northern red oak Shagbark hickory Post oak	70 --- 70	4 --- 4	White ash, white oak, bur oak, northern red oak, shagbark hickory.
437B, 437C2: Redbud	4A	Slight	Slight	Slight	Slight	Severe	White oak	75	4	White oak, green ash, yellow-poplar, northern red oak, black oak.
477B, 477B2, 477C2, 477C3: Winfield	3A	Slight	Slight	Slight	Slight	Severe	White oak Northern red oak Black oak	65 60 65	3 3 3	White oak, green ash, yellow-poplar, northern red oak, black oak.
491B2, 491C3, 491D3: Ruma	4A	Slight	Slight	Slight	Slight	Moderate	White oak	75	4	White oak, northern red oak, green ash, black walnut, yellow-poplar.
515C2, 515C3, 515D3: Bunkum	4A	Slight	Moderate	Slight	Slight	Severe	White oak	75	4	Pecan, green ash, white oak, bur oak, northern red oak, black oak.
517A, 517B: Marine	4A	Slight	Slight	Moderate	Moderate	Moderate	Northern red oak Shagbark hickory Post oak	70 --- 70	4 --- 4	Northern red oak, green ash, baldcypress, shagbark hickory, pin oak, bur oak.

Table 11.—Forestland Management and Productivity—continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Suggested trees to plant
									m3/ha	
582B, 582B2, 582C2:										
Homen----------	4A	Slight	Slight	Slight	Slight	Severe	White oak----------	75	4	White oak, green ash, yellow-poplar, northern red oak, black oak, pecan.
585F2:										
Negley---------	5R	Moderate	Moderate	Slight	Slight	Moderate	Northern red oak----	94	5	Northern red oak, green ash, yellow-poplar, white oak.
							Sugar maple--------	---	---	
							Black walnut-------	---	---	
							Black cherry-------	---	---	
							White ash----------	---	---	
							Yellow-poplar------	99	7	
821G:										
Morristown-----	4R	Severe	Severe	Moderate	Slight	Moderate	Northern red oak----	70	4	Northern red oak, eastern redcedar, swamp white oak, pin oak, hybrid poplar.
							White ash----------	---	---	
							American sycamore---	---	---	
							Eastern cottonwood--	---	---	
							White oak----------	60	3	
							Black oak----------	70	4	
							Black locust-------	---	---	
							Eastern redcedar----	---	---	
871B, 871D:										
Lenzburg-------	5A	Slight	Slight	Slight	Slight	Moderate	Sweetgum-----------	76	5	White ash, green ash, black walnut, pecan, shellbark hickory.
							Eastern cottonwood--	---	---	
							Black walnut-------	73	---	
871G:										
Lenzburg-------	5R	Severe	Severe	Slight	Slight	Moderate	Sweetgum-----------	76	5	White ash, green ash, pecan, shellbark hickory.
							Eastern cottonwood--	---	---	
							Black walnut-------	73	---	
878C3:										
Coulterville----	4A	Slight	Slight	Slight	Slight	Moderate	White oak----------	70	4	White oak, green ash, eastern redcedar, black oak, shagbark hickory.
							Pignut hickory------	---	---	
							Black oak----------	---	---	
Grantfork-------	4T	Slight	Slight	Slight	Slight	Moderate	Black oak----------	70	4	White ash, green ash, eastern redcedar, black oak, shagbark hickory.
							Shagbark hickory----	---	---	
							Post oak-----------	---	---	
880B2:										
Coulterville----	4A	Slight	Slight	Slight	Slight	Moderate	White oak----------	70	4	Green ash, eastern redcedar, white oak, pin oak, shagbark hickory.
							Pignut hickory------	---	---	
							Post oak-----------	---	---	
							Black oak----------	---	---	
Darmstadt-------	4T	Slight	Slight	Moderate	Slight	Slight	White oak----------	70	4	Green ash, eastern redcedar, white oak, pin oak.
							Pignut hickory------	---	---	
							Post oak-----------	---	---	
							Black oak----------	70	4	

Table 11.—Forestland Management and Productivity—continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Suggested trees to plant
									m3/ha	
882A: Oconee.										
Darmstadt	4T	Slight	Slight	Moderate	Slight	Slight	White oak Pignut hickory Black oak	70 --- 70	4 --- 4	Green ash, eastern redcedar, white oak, white ash.
Coulterville	4A	Slight	Slight	Slight	Slight	Moderate	White oak Pignut hickory Black oak	70 --- ---	4 --- ---	Green ash, eastern redcedar, white oak, black oak,. shagbark hickory.
882B: Oconee.										
Coulterville	4A	Slight	Slight	Slight	Slight	Moderate	White oak Pignut hickory Black oak	70 --- ---	4 --- ---	Green ash, eastern redcedar, white oak, white ash, shagbark hickory.
Darmstadt	4T	Slight	Slight	Moderate	Slight	Slight	White oak Pignut hickory Post oak Black oak	70 --- --- 70	4 --- --- 4	Green ash, eastern redcedar, white oak, pin oak, black oak.
884C3: Bunkum	4A	Slight	Moderate	Slight	Slight	Severe	White oak	75	4	Pecan, green ash, white oak, bur oak, northern red oak, black oak.
Coulterville	4A	Slight	Slight	Slight	Slight	Moderate	White oak Pignut hickory Post oak Black oak	70 --- --- ---	4 --- --- ---	Green ash, eastern redcedar, white oak, pin oak, black oak.
886F3: Ruma	4A	Slight	Slight	Slight	Slight	Moderate	White oak	75	4	Pecan, green ash, white oak, bur oak, northern red oak, black oak.
Ursa	4R	Moderate	Moderate	Moderate	Slight	Slight	White oak Northern red oak Black oak Green ash	70 70 70 ---	4 4 4 ---	Green ash, eastern redcedar, pin oak, baldcypress, shagbark hickory.
897D3: Bunkum	4A	Slight	Moderate	Slight	Slight	Severe	White oak	75	4	Pecan, green ash, white oak, bur oak, northern red oak, black oak.

Table 11.—Forestland Management and Productivity—continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Suggested trees to plant
									m3/ha	
Atlas	4C	Slight	Slight	Moderate	Moderate	Slight	White oak Bur oak Northern red oak Green ash	70 70 70 ---	4 4 4 ---	Green ash, pin oak, baldcypress, shellbark hickory, bur oak.
906C3: Redbud	4A	Slight	Slight	Slight	Slight	Severe	White oak	75	4	White oak, green ash, yellow-poplar, northern red oak, black oak.
Hurst	4C	Slight	Slight	Moderate	Moderate	Slight	White oak White ash Southern red oak Bur oak	70 --- 70 ---	4 --- 4 ---	Green ash, eastern redcedar, pin oak, baldcypress, bur oak, shellbark hickory.
907D3: Redbud	4A	Slight	Slight	Slight	Slight	Severe	White oak	75	4	White oak, green ash, yellow-poplar, northern red oak, black oak.
Colp	4A	Slight	Slight	Slight	Slight	Slight	Bur oak White ash White oak Northern red oak	70 --- 70 70	4 --- 4 4	Bur oak, white oak, northern red oak, white ash, green ash, yellow-poplar.
962F2: Sylvan	4R	Moderate	Moderate	Moderate	Slight	Moderate	Northern red oak Black walnut White oak	80 --- 80	4 --- 4	Northern red oak, white oak, green ash, shagbark hickory.
Bold.										
962G: Sylvan	4R	Severe	Severe	Severe	Slight	Moderate	Northern red oak Yellow-poplar Black walnut White oak	80 90 --- 80	4 6 --- 4	Northern red oak, white oak, green ash, shagbark hickory.
Bold.										
1071A: Darwin, undrained	4W	Slight	Severe	Severe	Moderate	Severe	Pin oak American sycamore Eastern cottonwood Swamp white oak Green ash	80 --- --- --- ---	4 --- --- --- ---	Swamp white oak, bur oak, green ash, pin oak, baldcypress.
1288A: Petrolia, undrained	5W	Slight	Moderate	Moderate	Slight	Severe	Pin oak Sweetgum American sycamore Eastern cottonwood Cherrybark oak	90 --- --- 100 ---	5 --- --- 9 ---	Swamp white oak, bur oak, green ash, pin oak, water tupelo, baldcypress.

Table 11.—Forestland Management and Productivity—continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Suggested trees to plant
									m3/ha	
3038B: Rocher	7A	Slight	Slight	Slight	Slight	Moderate	Yellow-poplar	95	7	Swamp white oak,
							Sweetgum	---	---	bur oak,
							American sycamore	---	---	baldcypress,
							Eastern cottonwood	105	10	pin oak,
										green ash.
3070L: Beaucoup	5W	Slight	Severe	Moderate	Moderate	Severe	Pin oak	90	5	Swamp white oak,
							American sycamore	---	---	bur oak,
							Eastern cottonwood	100	9	baldcypress
							Sweetgum	---	---	green ash,
							Cherrybark oak	---	---	pin oak.
3288L: Petrolia	5W	Slight	Moderate	Moderate	Slight	Severe	Pin oak	90	5	Swamp white oak,
							Sweetgum	---	---	bur oak,
							American sycamore	---	---	green ash,
							Eastern cottonwood	100	9	pin oak,
							Cherrybark oak	---	---	water tupelo,
										baldcypress.
3333A: Wakeland	5A	Slight	Severe	Slight	Moderate	Severe	Pin oak	90	5	White oak,
							Boxelder	---	---	northern red oak,
							Black walnut	---	---	green ash,
							Green ash	---	---	green ash, pecan,
										shellbark hickory.
3334L: Birds	5W	Slight	Severe	Moderate	Moderate	Severe	Pin oak	90	5	Swamp white
							American sycamore	---	---	oak, bur oak,
							Eastern cottonwood	100	9	pin oak,
										baldcypress,
										green ash.
3336A: Wilbur	8A	Slight	Moderate	Slight	Slight	Severe	Yellow-poplar	100	8	White oak,
										northern red oak,
										pecan,
										shagbark hickory,
										green ash.
3391A: Blake	12A	Slight	Slight	Slight	Slight	Slight	Eastern cottonwood	115	12	Swamp white oak,
							Silver maple	---	---	bur oak,
							American sycamore	---	---	baldcypress,
										green ash.
3394A, 3394B: Haynie	11A	Slight	Slight	Slight	Slight	Moderate	Eastern cottonwood	110	11	Swamp white oak,
							Green ash	---	---	bur oak,
							American sycamore	110	11	baldcypress,
							Black walnut	---	---	green ash.
3415A: Orion	2W	Slight	Moderate	Slight	Slight	Severe	Red maple	80	2	White oak,
							Silver maple	---	---	northern red oak,
							White ash	---	---	pecan,
										green ash,
										shagbark hickory.
3428A: Coffeen	5W	Slight	Moderate	Slight	Slight	Severe	Pin oak	90	5	Swamp white oak,
							Green ash	---	---	pin oak,
							Eastern cottonwood	100	---	green ash,
										bur oak,
										baldcypress.

Table 11.–Forestland Management and Productivity–continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Suggested trees to plant
									m3/ha	
3847L:										
Fluvaquents-----	2W	Slight	Severe	Severe	Severe	Severe	White Ash-----------	40	2	Swamp white oak,
							Eastern cottonwood--	75	5	bur oak,
							Red maple-----------	46	2	green ash,
										swamp chestnut oak,
										pin oak,
										baldcypress.
Orthents.										
5079C:										
Menfro, karst---	4A	Slight	Slight	Slight	Slight	Severe	Northern red oak----	81	4	White oak,
							White ash-----------	70	5	northern red oak,
							Black oak-----------	73	4	black oak,
							Sugar maple---------	68	5	green ash,
							White oak-----------	59	3	yellow-poplar,
										pecan,
5079D:										
Menfro, karst---	4R	Moderate	Moderate	Slight	Slight	Severe	Northern red oak----	81	4	White oak,
							White ash-----------	70	5	northern red oak,
							Black oak-----------	73	4	black oak,
							Sugar maple---------	68	5	green ash,
							White oak-----------	59	3	yellow-poplar,
										pecan,
5079G:										
Menfro, karst---	4R	Severe	Severe	Slight	Slight	Severe	Northern red oak----	81	4	White oak,
							White ash-----------	70	5	northern red oak,
							Black oak-----------	73	4	black oak,
							Sugar maple---------	68	5	green ash,
							White oak-----------	59	3	yellow-poplar,
										pecan,
8026A:										
Wagner----------	4W	Slight	Severe	Severe	Severe	Severe	Pin oak-------------	70	4	Water tupelo,
							Blackjack oak-------	60	3	swamp white oak,
							Black oak-----------	55	3	pin oak,
										baldcypress,
										bur oak,
										green ash.
8070A:										
Beaucoup--------	5W	Slight	Severe	Moderate	Moderate	Severe	Pin oak-------------	90	5	Swamp white oak,
							American sycamore---	---	---	bur oak,
							Eastern cottonwood--	100	9	baldcypress,
										green ash,
										pin oak.
8071L:										
Darwin----------	4W	Slight	Severe	Severe	Moderate	Severe	Pin oak-------------	80	4	Green ash,
							American sycamore---	---	---	swamp white oak,
							Eastern cottonwood--	---	---	pin oak,
							Green ash-----------	---	---	bur oak,
							Swamp white oak-----	---	---	baldcypress.
8084A:										
Okaw------------	4W	Slight	Severe	Severe	Severe	Severe	Pin oak-------------	70	4	Green ash,
							White oak-----------	---	---	water tupelo,
							Blackjack oak-------	60	3	swamp white oak,
							Post oak------------	---	---	pin oak,
							Black oak-----------	55	3	baldcypress,
										bur oak.

Table 11.—Forestland Management and Productivity—continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Suggested trees to plant
									m3/ha	
8109A: Racoon	4W	Slight	Severe	Moderate	Severe	Severe	Pin oak Green ash White oak Post oak	80 --- --- 80	4 --- --- 4	Water tupelo, pin oak, baldcypress, bur oak, swamp white oak, green ash.
8122C: Colp	4A	Slight	Slight	Slight	Slight	Slight	Bur oak White ash White oak Northern red oak	70 --- 70 70	4 --- 4 4	White ash, green ash, black walnut, yellow-poplar, white oak, northern red oak.
8122D: Colp	4A	Slight	Slight	Slight	Slight	Slight	Bur oak White ash White oak Northern red oak	70 --- 70 70	4 --- 4 4	White ash, green ash, yellow-poplar, white oak, northern red oak, pecan.
8131B: Alvin	4A	Slight	Slight	Slight	Slight	Moderate	Northern red oak Black walnut White oak	80 --- 80	4 --- 4	Green ash, black walnut, yellow-poplar, white oak, northern red oak.
8162A: Gorham	5W	Slight	Severe	Moderate	Moderate	Severe	Pin oak American sycamore Eastern cottonwood	90 --- 100	5 --- 9	Green ash, swamp white oak, cherrybark oak, pin oak, baldcypress, bur oak.
8284A: Tice	6A	Slight	Slight	Slight	Slight	Severe	Yellow-poplar White ash Sweetgum Pin oak Eastern cottonwood	90 --- 86 96 ---	6 --- 7 5 ---	Green ash, yellow-poplar, cherrybark oak, white oak, northern red oak, pecan.
8338A: Hurst	4C	Slight	Slight	Moderate	Moderate	Slight	White oak White ash Post oak Black oak Bur oak	70 --- --- --- ---	4 --- --- --- ---	Green ash, eastern redcedar, bur oak, pin oak, baldcypress.
8338B, 8338C: Hurst	4C	Slight	Slight	Moderate	Moderate	Slight	Southern red oak White ash White oak Bur oak	70 --- --- ---	4 --- --- ---	Green ash, eastern redcedar, pin oak, baldcypress, shagbark hickory.
8394A: Haynie	11A	Slight	Slight	Slight	Slight	Moderate	Eastern cottonwood American sycamore Green ash Black walnut	110 110 --- ---	11 11 --- ---	Green ash, bur oak, swamp white oak, baldcypress.

Table 11.—Forestland Management and Productivity—continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Suggested trees to plant
									m3/ha	
8432A:										
Geff	4A	Slight	Slight	Slight	Slight	Moderate	Northern red oak	70	4	Northern red oak,
							Bur oak	---	---	green ash,
							Green ash	---	---	yellow-poplar,
							White oak	70	4	white oak,
										pecan.
8434B:										
Ridgway	5A	Slight	Slight	Slight	Slight	Severe	White oak	85	5	Green ash,
							Green ash	76	5	black walnut,
										white oak,
										northern red oak,
										pecan.
8489A:										
Hurst, sandy substratum	4W	Slight	Moderate	Slight	Slight	Slight	White oak	70	4	Eastern redcedar,
							White ash	---	---	swamp white oak,
							Southern red oak	70	4	bur oak,
							Bur oak	---	---	baldcypress,
										green ash,
										pin oak.
8524L:										
Zipp	4W	Slight	Severe	Severe	Severe	Severe	White oak	75	4	Swamp white oak,
							Pin oak	86	5	bur oak,
							Sweetgum	90	7	baldcypress,
										green ash,
										pin oak.
8591A:										
Fults	4W	Slight	Severe	Severe	Moderate	Severe	Pin oak	80	4	Green ash,
							American sycamore	---	---	swamp white oak,
							Green ash	---	---	baldcypress,
							Eastern cottonwood	---	---	bur oak,
							Swamp white oak	---	---	pin oak.
8646A:										
Fluvaquents, loamy	4W	Slight	Severe	Severe	Severe	Severe	Pin oak	70	4	Swamp chestnut oak,
							White ash	40	2	pin oak,
							Eastern cottonwood	75	5	swamp white oak,
							Red maple	46	2	bur oak,
										baldcypress,
										green ash.
8812F:										
Typic Hapludalfs	5R	Moderate	Moderate	Slight	Slight	Severe	White oak	85	5	Green ash,
							Shagbark hickory	---	---	yellow-poplar,
							Bur oak	---	---	white oak,
										northern red oak,
										shagbark hickory,
										pecan.

*Productivity index is the yield in cubic meters per hectare per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

Table 12.—Recreational Development

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
5C2, 5C3: Blair	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: wetness.
5D3: Blair	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: wetness, slope.
8F2: Hickory	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
31A: Pierron	Severe: ponding, percs slowly.	Severe: ponding, percs slowly.	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding.
37A: Worthen	Slight	Slight	Slight	Slight	Slight.
37B: Worthen	Slight	Slight	Moderate: slope.	Slight	Slight.
46A: Herrick	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
50A: Virden	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
75B: Drury	Slight	Slight	Moderate: slope.	Severe: erodes easily.	Slight.
79B: Menfro	Slight	Slight	Moderate: slope.	Slight	Slight.
79C2, 79C3: Menfro	Slight	Slight	Severe: slope.	Slight	Slight.
79D2, 79D3: Menfro	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
79F, 79F3, 79G: Menfro	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
81A: Littleton	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
90A: Bethalto	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

Table 12.--Recreational Development--continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
109A: Racoon	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
112A: Cowden	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
113A, 113B: Oconee	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
267A, 267B: Caseyville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
283B: Downsouth	Moderate: wetness.	Moderate: wetness.	Moderate: slope, wetness.	Severe: erodes easily.	Moderate: wetness.
283C2: Downsouth	Moderate: wetness.	Moderate: wetness.	Severe: slope.	Severe: erodes easily.	Moderate: wetness.
384A, 384B: Edwardsville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
385A: Mascoutah	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
423A, 423B: Millstadt	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
433A: Floraville	Severe: ponding, percs slowly.	Severe: ponding, percs slowly.	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding.
437B: Redbud	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: erodes easily.	Slight.
437C2: Redbud	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Slight.
438B: Aviston	Moderate: wetness.	Moderate: wetness.	Moderate: slope, wetness.	Slight	Slight.
438C2: Aviston	Moderate: wetness.	Moderate: wetness.	Severe: slope.	Slight	Slight.
441B: Wakenda	Slight	Slight	Moderate: slope.	Slight	Slight.
441C2: Wakenda	Slight	Slight	Severe: slope.	Slight	Slight.

Table 12.--Recreational Development--continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
466A:					
Bartelso	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
468A:					
Lakaskia	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
477B, 477B2:					
Winfield	Slight	Slight	Moderate: slope.	Slight	Slight.
477C2, 477C3:					
Winfield	Slight	Slight	Severe: slope.	Slight	Slight.
491B2:					
Ruma	Slight	Slight	Moderate: slope.	Severe: erodes easily.	Slight.
491C3:					
Ruma	Slight	Slight	Severe: slope.	Severe: erodes easily.	Slight.
491D3:					
Ruma	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
515C2, 515C3:					
Bunkum	Severe: wetness.	Severe: wetness.	Severe: slope, wetness.	Severe: wetness, erodes easily.	Severe: wetness.
515D3:					
Bunkum	Severe: wetness.	Severe: wetness.	Severe: slope, wetness.	Severe: wetness, erodes easily.	Severe: wetness.
517A, 517B:					
Marine	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
582B, 582B2:					
Homen	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: erodes easily.	Slight.
582C2:					
Homen	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Slight.
585F2:					
Negley	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
801B:					
Orthents, silty	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: erodes easily.	Slight.
801D:					
Orthents, silty	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.

Table 12.—Recreational Development—continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
802B:					
Orthents, loamy	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight	Slight.
802D:					
Orthents, loamy	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
821G:					
Morristown	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones	Severe: slope.	Severe: large stones, slope.
824B:					
Swanwick	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Slight	Slight.
825B:					
Lenzburg, acid substratum	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, small stones, percs slowly.	Severe: erodes easily.	Moderate: large stones
826D:					
Orthents, acid substratum	Severe: wetness.	Severe: wetness.	Severe: slope, wetness.	Severe: wetness, erodes easily.	Severe: wetness.
871B:					
Lenzburg	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope.	Slight	Moderate: large stones
871D:					
Lenzburg	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: large stones
871G:					
Lenzburg	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
878C3:					
Coulterville	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: slope, wetness.	Severe: erodes easily.	Moderate: wetness.
Grantfork	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: slope, wetness.	Severe: erodes easily.	Moderate: wetness.
880B2:					
Coulterville	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Severe: erodes easily.	Moderate: wetness.
Darmstadt	Severe: wetness, percs slowly, excess sodium.	Severe: excess sodium, percs slowly.	Severe: wetness, percs slowly.	Severe: erodes easily.	Severe: excess sodium.
882A:					
Oconee	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.

Table 12.—Recreational Development—continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Darmstadt-------	Severe: wetness, percs slowly, excess sodium.	Severe: excess sodium, percs slowly.	Severe: wetness, percs slowly.	Severe: erodes easily.	Severe: excess sodium.
Coulterville----	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Severe: erodes easily.	Moderate: wetness.
882B:					
Oconee----------	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
Coulterville----	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Severe: erodes easily.	Moderate: wetness.
Darmstadt-------	Severe: wetness, percs slowly, excess sodium.	Severe: excess sodium, percs slowly.	Severe: wetness, percs slowly.	Severe: erodes easily.	Severe: excess sodium.
884C3:					
Bunkum----------	Severe: wetness.	Severe: wetness.	Severe: slope, wetness.	Severe: wetness, erodes easily.	Severe: wetness.
Coulterville----	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: slope, wetness.	Severe: erodes easily.	Moderate: wetness.
885A:					
Virden----------	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Fosterburg------	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
886F3:					
Ruma------------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
Ursa------------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
894A:					
Herrick---------	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
Biddle----------	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Piasa-----------	Severe: ponding, percs slowly, excess sodium.	Severe: ponding, excess sodium, percs slowly.	Severe: ponding, percs slowly, excess sodium.	Severe: ponding.	Severe: excess sodium, ponding.
897D3:					
Bunkum----------	Severe: wetness.	Severe: wetness.	Severe: slope, wetness.	Severe: wetness, erodes easily.	Severe: wetness.
Atlas-----------	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: slope, wetness, percs slowly.	Severe: wetness, erodes easily.	Severe: wetness.

Table 12.—Recreational Development—continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
906C3:					
Redbud	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Slight.
Hurst	Severe: wetness, percs slowly.	Severe: percs slowly.	Severe: slope, wetness, percs slowly.	Severe: erodes easily.	Moderate: wetness.
907D3:					
Redbud	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
Colp	Moderate: slope, wetness.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
962F2:					
Sylvan	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
Bold	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
962G:					
Sylvan	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
Bold	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
993A:					
Cowden	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Piasa	Severe: ponding, percs slowly, excess sodium.	Severe: ponding, excess sodium, percs slowly.	Severe: ponding, percs slowly, excess sodium.	Severe: ponding.	Severe: excess sodium, ponding.
1071A:					
Darwin, undrained	Severe: flooding, ponding, percs slowly.	Severe: ponding, too clayey, percs slowly.	Severe: too clayey, ponding, flooding.	Severe: ponding, too clayey.	Severe: ponding, flooding, too clayey.
1248A:					
McFain, undrained	Severe: flooding, ponding, too clayey.	Severe: ponding, too clayey.	Severe: too clayey, ponding, flooding.	Severe: ponding, too clayey.	Severe: ponding, flooding, too clayey.
1288A:					
Petrolia, undrained	Severe: flooding, ponding.	Severe: ponding.	Severe: ponding, flooding.	Severe: ponding.	Severe: ponding, flooding.

Table 12.—Recreational Development—continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
2071L:					
Darwin	Severe: flooding, ponding, percs slowly.	Severe: ponding, too clayey, percs slowly.	Severe: too clayey, ponding.	Severe: ponding, too clayey.	Severe: ponding, too clayey.
Urban land	---	---	---	---	---
2079D:					
Menfro	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
Urban land	---	---	---	---	---
2079E:					
Menfro	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Urban land	---	---	---	---	---
2183A:					
Shaffton	Severe: flooding.	Moderate: wetness.	Moderate: wetness, flooding.	Slight	Moderate: flooding.
Urban land	---	---	---	---	---
2384B:					
Edwardsville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Urban land	---	---	---	---	---
2477B:					
Winfield	Slight	Slight	Moderate: slope.	Slight	Slight.
Urban land	---	---	---	---	---
3038B:					
Rocher	Severe: flooding.	Moderate: flooding.	Moderate: slope.	Moderate: flooding.	Severe: flooding.
3070L:					
Beaucoup	Severe: flooding, ponding.	Severe: ponding.	Severe: ponding, flooding.	Severe: ponding.	Severe: ponding, flooding.
3076A:					
Otter	Severe: flooding, ponding.	Severe: ponding.	Severe: ponding, flooding.	Severe: ponding.	Severe: ponding, flooding.
3083L:					
Wabash	Severe: flooding, ponding, percs slowly.	Severe: ponding, too clayey, percs slowly.	Severe: too clayey, ponding, flooding.	Severe: ponding, too clayey.	Severe: ponding, flooding, too clayey.
3180A:					
Dupo	Severe: flooding.	Moderate: flooding, wetness, percs slowly.	Severe: flooding.	Moderate: wetness, flooding.	Severe: flooding.
3288L:					
Petrolia	Severe: flooding, ponding.	Severe: ponding.	Severe: ponding, flooding.	Severe: ponding.	Severe: ponding, flooding.

Table 12.—Recreational Development—continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
3333A:					
Wakeland	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
3334L:					
Birds	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
3336A:					
Wilbur	Severe: flooding.	Moderate: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.	Severe: flooding.
3391A:					
Blake	Severe: flooding.	Moderate: flooding, wetness.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
3394A:					
Haynie	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
3394B:					
Haynie	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
3415A:					
Orion	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: wetness, flooding.	Moderate: wetness, flooding.	Severe: flooding.
3428A:					
Coffeen	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: wetness, flooding.	Moderate: wetness, flooding.	Severe: flooding.
3847L:					
Fluvaquents	Severe: flooding, ponding.	Severe: ponding.	Severe: ponding, flooding.	Severe: ponding.	Severe: ponding, flooding.
Orthents	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
5079C:					
Menfro, karst	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
5079D:					
Menfro, karst	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
5079G:					
Menfro, karst	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
8026A:					
Wagner	Severe: flooding, wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
8070A:					
Beaucoup	Severe: flooding, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.

Table 12.--Recreational Development--continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
8071L:					
Darwin	Severe: flooding, ponding, percs slowly.	Severe: ponding, too clayey, percs slowly.	Severe: too clayey, ponding.	Severe: ponding, too clayey.	Severe: ponding, too clayey.
8084A:					
Okaw	Severe: flooding, ponding, percs slowly.	Severe: ponding, percs slowly.	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding.
8109A:					
Racoon	Severe: flooding, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
8122C:					
Colp	Severe: flooding.	Moderate: wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: flooding.
8122D:					
Colp	Severe: flooding.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: flooding, slope.
8131B:					
Alvin	Severe: flooding.	Slight	Moderate: slope.	Slight	Moderate: flooding.
8162A:					
Gorham	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
8180A:					
Dupo	Severe: flooding.	Moderate: wetness, percs slowly.	Moderate: wetness, flooding, percs slowly.	Moderate: wetness.	Moderate: wetness, flooding.
8183A:					
Shaffton	Severe: flooding.	Moderate: wetness.	Moderate: wetness, flooding.	Slight	Moderate: flooding.
8284A:					
Tice	Severe: flooding.	Moderate: wetness.	Moderate: wetness, flooding.	Moderate: wetness.	Moderate: wetness, flooding.
8304B:					
Landes	Severe: flooding.	Slight	Moderate: slope.	Slight	Moderate: small stones
8338A:					
Hurst	Severe: flooding, wetness, percs slowly.	Severe: percs slowly.	Severe: wetness, percs slowly.	Severe: erodes easily.	Moderate: wetness, flooding.
8338B:					
Hurst	Severe: flooding, wetness, percs slowly.	Severe: percs slowly.	Severe: wetness, percs slowly.	Severe: erodes easily.	Moderate: wetness, flooding.

Table 12.—Recreational Development—continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
8338C:					
Hurst	Severe: flooding, wetness, percs slowly.	Severe: percs slowly.	Severe: slope, wetness, percs slowly.	Severe: erodes easily.	Moderate: wetness, flooding.
8394A:					
Haynie	Severe: flooding.	Slight	Moderate: flooding.	Slight	Moderate: flooding.
8432A:					
Geff	Severe: flooding, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, flooding.
8434B:					
Ridgway	Severe: flooding.	Slight	Moderate: slope, flooding.	Severe: erodes easily.	Moderate: flooding.
8436B:					
Meadowbank	Severe: flooding.	Slight	Moderate: slope, flooding.	Slight	Moderate: flooding.
8489A:					
Hurst, Sandy Substratum	Severe: flooding, wetness, percs slowly.	Severe: percs slowly.	Severe: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness, flooding.
8524L:					
Zipp	Severe: flooding, ponding, percs slowly.	Severe: ponding, too clayey, percs slowly.	Severe: too clayey, ponding.	Severe: ponding, too clayey.	Severe: ponding, too clayey.
8591A:					
Fults	Severe: flooding, wetness, percs slowly.	Severe: wetness, too clayey, percs slowly.	Severe: too clayey, wetness.	Severe: wetness, too clayey.	Severe: wetness, too clayey.
8592A:					
Nameoki	Severe: flooding, wetness, percs slowly.	Severe: too clayey, percs slowly.	Severe: too clayey, wetness.	Severe: too clayey.	Severe: too clayey.
8646A:					
Fluvaquents, Loamy	Severe: flooding, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
8812F:					
Typic Hapludalfs	Severe: flooding, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

Table 13.--Wildlife Habitat

(See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated)

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
5C2, 5C3, 5D3: Blair	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
8F2: Hickory	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
31A: Pierron	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Fair	Good.
37A, 37B: Worthen	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
46A: Herrick	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
50A: Virden	Fair	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
75B: Drury	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
79B: Menfro	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
79C2, 79C3, 79D2, 79D3: Menfro	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
79F, 79F3: Menfro	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
79G: Menfro	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
81A: Littleton	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
90A: Bethalto	Poor	Poor	Poor	Poor	Poor	Fair	Fair	Good	Good	Fair.
109A: Racoon	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
112A: Cowden	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
113A: Oconee	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
113B: Oconee	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
267A, 267B: Caseyville	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
283B, 283C2: Downsouth	Fair	Fair	Fair	Poor	Fair	Poor	Poor	Good	Good	Poor.

Table 13.—Wildlife Habitat—continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
384A: Edwardsville	Poor	Poor	Poor	Poor	Poor	Fair	Fair	Good	Poor	Fair.
384B: Edwardsville	Poor	Poor	Poor	Poor	Poor	Fair	Poor	Good	Poor	Poor.
385A: Mascoutah	Poor	Poor	Poor	Poor	Poor	Good	Good	Good	Poor	Good.
423A, 423B: Millstadt	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
433A: Floraville	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Fair	Good.
437B, 437C2: Redbud	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
438B, 438C2: Aviston	Fair	Fair	Fair	Poor	Fair	Poor	Poor	Good	Good	Poor.
441B: Wakenda	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
441C2: Wakenda	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
466A: Bartelso	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
468A Lakaskia	Poor	Fair	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
477B, 477B2: Winfield	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
477C2, 477C3: Winfield	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
491B2: Ruma	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
491C3, 491D3: Ruma	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
515C2, 515C3, 515D3: Bunkum	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
517A: Marine	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
517B: Marine	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
582B, 582B2: Homen	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
582C2: Homen	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

Table 13.—Wildlife Habitat—continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hard-wood trees	Conif-erous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Open-land wild-life	Forest-land wild-life	Wetland wild-life
585F2:										
Negley	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
801B:										
Orthents, silty	Good	Good	Good	Good	Good	Fair	Poor	Good	Good	Poor.
801D:										
Orthents, silty	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
802B:										
Orthents, loamy	Good	Fair	Good	Good	Good	Poor	Poor	Good	Good	Poor.
802D:										
Orthents, loamy	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
821G:										
Morristown	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.
824B:										
Swanwick	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
825B:										
Lenzburg, acid substratum	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
826D:										
Orthents, acid substratum	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
871B:										
Lenzburg	Poor	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
871D:										
Lenzburg	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
871G:										
Lenzburg	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
878C3:										
Coulterville	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Grantfork	Fair	Good	Fair	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
880B2:										
Coulterville	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Darmstadt	Fair	Good	Poor	Good	Good	Fair	Poor	Fair	Good	Poor.
882A:										
Oconee	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Darmstadt	Fair	Good	Poor	Good	Good	Fair	Fair	Fair	Good	Fair.
Coulterville	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.

Table 13.—Wildlife Habitat—continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
882B:										
Oconee	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Coulterville	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Darmstadt	Fair	Good	Poor	Good	Good	Fair	Poor	Fair	Good	Poor.
884C3:										
Bunkum	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Coulterville	Fair	Good	Good	Good	Good	---	Fair	Good	Good	Fair.
885A:										
Virden	Fair	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
Fosterburg	Poor	Fair	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
886F3:										
Ruma	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Ursa	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
894A:										
Herrick	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Biddle	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Piasa	Poor	Fair	Fair	Poor	Poor	Good	Good	Poor	Poor	Good.
897D3:										
Bunkum	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Atlas	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
906C3:										
Redbud	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Hurst	Fair	Good	Good	Good	Fair	Poor	Very poor.	Good	Good	Very poor.
907D3:										
Redbud	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Colp	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
962F2, 962G:										
Sylvan	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Bold	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
993A:										
Cowden	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
Piasa	Poor	Fair	Fair	Poor	Poor	Good	Good	Poor	Poor	Good.

Table 13.—Wildlife Habitat—continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hard-wood trees	Conif-erous plants	Wetland plants	Shallow water areas	Open-land wild-life	Forest-land wild-life	Wetland wild-life
1071A: Darwin, undrained	Poor	Poor	Fair	Poor	Poor	Good	Good	Poor	Poor	Good.
1248A: McFain, undrained	Good	Good	Good	Good	Fair	Good	Good	Good	Fair	Fair.
1288A: Petrolia, undrained	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
2071L: Darwin	Poor	Poor	Fair	Poor	Poor	Good	Good	Poor	Poor	Poor
Urban land	---	---	---	---	---	---	---	---	---	---
2079D: Menfro	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Urban land	---	---	---	---	---	---	---	---	---	---
2079E: Menfro	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Urban land	---	---	---	---	---	---	---	---	---	---
2183A: Shaffton	Good	Good	Good	Good	Fair	Good	Good	Good	Good	Good.
Urban land	---	---	---	---	---	---	---	---	---	---
2384B: Edwardsville	Poor	Poor	Poor	Poor	Poor	Fair	Poor	Good	Poor	Poor.
Urban land	---	---	---	---	---	---	---	---	---	---
2477B: Winfield	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Urban land	---	---	---	---	---	---	---	---	---	---
3038B: Rocher	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
3070L: Beaucoup	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
3076A: Otter	Good	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
3083L: Wabash	Very poor.	Poor	Poor	Poor	Poor	Poor	Good	Poor	Poor	Fair.
3180A: Dupo	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
3288L: Petrolia	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
3333A: Wakeland	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.

Table 13.—Wildlife Habitat—continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hard-wood trees	Conif-erous plants	Wetland plants	Shallow water areas	Open-land wild-life	Forest-land wild-life	Wetland wild-life
3334L: Birds	Good	Fair	Good	Good	Fair	Good	Good	Good	Good	Good.
3336A: Wilbur	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
3391A: Blake	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good.
3394A, 3394B: Haynie	Fair	Fair	Fair	Good	Poor	Poor	Poor	Fair	Fair	Poor.
3415A: Orion	Good	Good	Good	Good	Good	Good	Fair	Good	Good	Good.
3428A: Coffeen	Fair	Fair	Fair	Good	Poor	Fair	Poor	Fair	Good	Poor.
3847L: Fluvaquents	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
Orthents	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
5079C: Menfro, karst	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
5079D: Menfro, karst	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
5079G: Menfro, karst	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
8026A: Wagner	Good	Good	Fair	Fair	Fair	Good	Good	Good	Fair	Fair.
8070A: Beaucoup	Good	Good	Good	Fair	Fair	Good	Good	Good	Fair	Good.
8071L: Darwin	Poor	Poor	Fair	Poor	Poor	Good	Good	Poor	Poor	Good.
8084A: Okaw	Fair	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
8109A: Racoon	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
8122C: Colp	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
8122D: Colp	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
8131B: Alvin	Good	Fair	Good	Good	Good	Poor	Poor	Good	Good	Poor.
8162A: Gorham	Good	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
8180A: Dupo	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.

Table 13.--Wildlife Habitat--continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hard-wood trees	Conif-erous plants	Wetland plants	Shallow water areas	Open-land wild-life	Forest-land wild-life	Wetland wild-life
8183A: Shaffton	Good	Good	Good	Good	Fair	Good	Good	Good	Good	Good.
8284A: Tice	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
8304B: Landes	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
8338A: Hurst	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Good	Fair.
8338B, 8338C: Hurst	Fair	Good	Good	Good	Fair	Poor	Very poor.	Good	Good	Very poor.
8394A: Haynie	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
8432A: Geff	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
8434B: Ridgway	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
8436B: Meadowbank	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
8489A: Hurst, sandy substratum	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Good	Fair.
8524L: Zipp	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
8591A: Fults	Fair	Fair	Poor	Fair	Fair	Good	Fair	Fair	Fair	Fair.
8592A: Nameoki	Fair	Good	Fair	Good	Good	Poor	Good	Fair	Good	Fair.
8646A: Fluvaquents, loamy	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
8812F: Typic Hapludalfs	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.

Table 14.—Building Site Development

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
5C2, 5C3: Blair	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: low strength, frost action.	Moderate: wetness.
5D3: Blair	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: wetness.	Severe: slope.	Severe: low strength, frost action.	Moderate: wetness, slope.
8F2: Hickory	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
31A: Pierron	Severe: ponding.	Severe: ponding, shrink-swell.	Severe: ponding, shrink-swell.	Severe: ponding, shrink-swell.	Severe: shrink-swell, low strength, ponding.	Severe: ponding.
37A, 37B: Worthen	Slight	Slight	Slight	Slight	Severe: low strength, frost action.	Slight.
46A: Herrick	Severe: wetness.	Severe: shrink-swell.	Severe: wetness.	Severe: shrink-swell.	Severe: shrink-swell, low strength, frost action.	Moderate: wetness.
50A: Virden	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell, low strength, wetness.	Severe: wetness.
75B: Drury	Slight	Slight	Slight	Slight	Severe: low strength, frost action.	Slight.
79B: Menfro	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength, frost action.	Slight.
79C2, 79C3: Menfro	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength, frost action.	Slight.
79D2, 79D3: Menfro	Moderate: slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength, frost action.	Moderate: slope.
79F, 79F3, 79G: Menfro	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope, frost action.	Severe: slope.

Table 14.–Building Site Development–continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
90A: Bethalto	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness, frost action.	Severe: wetness.
109A: Racoon	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: low strength, ponding, frost action.	Severe: ponding.
112A: Cowden	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell, low strength, wetness.	Severe: wetness.
113A, 113B: Oconee	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, frost action, shrink-swell.	Moderate: wetness.
267A, 267B: Caseyville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness, frost action.	Severe: wetness.
283B: Downsouth	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: low strength, frost action.	Moderate: wetness.
283C2: Downsouth	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: low strength, frost action.	Moderate: wetness.
384A, 384B: Edwardsville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness, frost action.	Severe: wetness.
385A: Mascoutah	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: low strength, ponding, frost action.	Severe: ponding.
423A: Millstadt	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness, frost action.	Severe: wetness.
423B: Millstadt	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness, frost action.	Severe: wetness.
433A: Floraville	Severe: ponding.	Severe: ponding, shrink-swell.	Severe: ponding, shrink-swell.	Severe: ponding, shrink-swell.	Severe: shrink-swell, low strength, ponding.	Severe: ponding.

Table 14.—Building Site Development—continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
437B: Redbud	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: low strength, frost action.	Slight.
437C2: Redbud	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: low strength, frost action.	Slight.
438B: Aviston	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: low strength, frost action.	Slight.
438C2: Aviston	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: low strength, frost action.	Slight.
441B: Wakenda	Moderate: wetness.	Moderate: shrink-swell.	Moderate: wetness, shrink-swell.	Moderate: shrink-swell.	Severe: low strength, frost action.	Slight.
441C2: Wakenda	Moderate: wetness.	Moderate: shrink-swell.	Moderate: wetness, shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength, frost action.	Slight.
466A: Bartelso	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: shrink-swell, low strength, frost action.	Moderate: wetness.
468A: Lakaskia	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell, low strength, wetness.	Severe: wetness.
477B, 477B2: Winfield	Moderate: wetness.	Moderate: shrink-swell.	Moderate: wetness, shrink-swell.	Moderate: shrink-swell.	Severe: low strength, frost action.	Slight.
477C2, 477C3: Winfield	Moderate: wetness.	Moderate: shrink-swell.	Moderate: wetness, shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength, frost action.	Slight.
491B2: Ruma	Moderate: wetness.	Moderate: shrink-swell.	Moderate: wetness, shrink-swell.	Moderate: shrink-swell.	Severe: low strength, frost action.	Slight.
491C3: Ruma	Moderate: wetness.	Moderate: shrink-swell.	Moderate: wetness, shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength, frost action.	Slight.
491D3: Ruma	Moderate: wetness, slope.	Moderate: shrink-swell, slope.	Moderate: wetness, slope, shrink-swell.	Severe: slope.	Severe: low strength, frost action.	Moderate: slope.

Table 14.–Building Site Development–continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
515C2, 515C3: Bunkum	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Severe: wetness.
515D3: Bunkum	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, slope.	Severe: low strength, wetness.	Severe: wetness.
517A, 517B: Marine	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: shrink-swell, low strength, frost action.	Moderate: wetness.
582B, 582B2: Homen	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: low strength, frost action.	Slight.
582C2: Homen	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: low strength, frost action.	Slight.
585F2: Negley	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
801B: Orthents, silty	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: low strength, frost action.	Slight.
801D: Orthents, silty	Severe: wetness, slope.	Severe: slope.	Severe: wetness, slope.	Severe: slope.	Severe: low strength, slope, frost action.	Severe: slope.
802B: Orthents, loamy	Moderate: dense layer, wetness.	Moderate: shrink-swell.	Moderate: wetness, shrink-swell.	Moderate: shrink-swell.	Severe: low strength.	Slight.
802D: Orthents, loamy	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
821G: Morristown	Severe: slope.	Severe: slope, unstable fill.	Severe: slope, unstable fill.	Severe: slope, unstable fill.	Severe: slope, unstable fill.	Severe: large stones, slope.
824B: Swanwick	Moderate: dense layer, wetness.	Slight	Moderate: wetness.	Slight	Severe: low strength, frost action.	Slight.
825B: Lenzburg, acid substratum	Moderate: dense layer.	Severe: too acid.	Severe: too acid.	Severe: too acid.	Severe: low strength.	Moderate: large stones.

Table 14.--Building Site Development--continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
826D:						
Orthents, acid substratum	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, slope.	Severe: low strength, wetness, frost action.	Severe: wetness.
871B:						
Lenzburg	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Moderate: large stones.
871D:						
Lenzburg	Moderate: slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: large stones.
871G:						
Lenzburg	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
878C3:						
Coulterville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, frost action.	Moderate: wetness.
Grantfork	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, frost action.	Moderate: wetness.
880B2:						
Coulterville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, frost action.	Moderate: wetness.
Darmstadt	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, frost action.	Severe: excess sodium.
882A:						
Oconee	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, frost action, shrink-swell.	Moderate: wetness.
Darmstadt	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, frost action.	Severe: excess sodium.
Coulterville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, frost action.	Moderate: wetness.
882B:						
Oconee	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, frost action, shrink-swell.	Moderate: wetness.
Coulterville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, frost action.	Moderate: wetness.
Darmstadt	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, frost action.	Severe: excess sodium.

Table 14.–Building Site Development–continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
884C3:						
Bunkum----------	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Severe: wetness.
Coulterville----	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, frost action.	Moderate: wetness.
885A:						
Virden----------	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell, low strength, wetness.	Severe: wetness.
Fosterburg------	Severe: ponding.	Severe: ponding, shrink-swell.	Severe: ponding, shrink-swell.	Severe: ponding, shrink-swell.	Severe: shrink-swell, low strength, ponding.	Severe: ponding.
886F3:						
Ruma------------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope, frost action.	Severe: slope.
Ursa------------	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength, slope.	Severe: slope.
894A:						
Herrick---------	Severe: wetness.	Severe: shrink-swell.	Severe: wetness.	Severe: shrink-swell.	Severe: shrink-swell, low strength, frost action.	Moderate: wetness.
Biddle----------	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell, low strength, wetness.	Severe: wetness.
Piasa-----------	Severe: ponding.	Severe: ponding, shrink-swell.	Severe: ponding, shrink-swell.	Severe: ponding, shrink-swell.	Severe: shrink-swell, low strength, ponding.	Severe: excess sodium, ponding.
897D3:						
Bunkum----------	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, slope.	Severe: low strength, wetness.	Severe: wetness.
Atlas-----------	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell, slope.	Severe: shrink-swell, low strength, wetness.	Severe: wetness.
906C3:						
Redbud----------	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: low strength, frost action.	Slight.
Hurst-----------	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell, low strength.	Moderate: wetness.

Table 14.--Building Site Development--continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
907D3:						
Redbud	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: wetness.	Severe: slope.	Severe: low strength, frost action.	Moderate: slope.
Colp	Severe: wetness.	Severe: shrink-swell.	Severe: wetness.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Moderate: slope.
962F2, 962G:						
Sylvan	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope, frost action.	Severe: slope.
Bold	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, frost action.	Severe: slope.
993A:						
Cowden	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell, low strength, wetness.	Severe: wetness.
Piasa	Severe: ponding.	Severe: ponding, shrink-swell.	Severe: ponding, shrink-swell.	Severe: ponding, shrink-swell.	Severe: shrink-swell, low strength, ponding.	Severe: excess sodium, ponding.
1071A:						
Darwin, undrained	Severe: ponding.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: shrink-swell, low strength, ponding.	Severe: ponding, flooding, too clayey.
1248A:						
McFain, undrained	Severe: ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: ponding, flooding, frost action.	Severe: ponding, flooding, too clayey.
1288A:						
Petrolia, undrained	Severe: ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: low strength, ponding, flooding.	Severe: ponding, flooding.
2071L:						
Darwin	Severe: ponding.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: shrink-swell, low strength, ponding.	Severe: ponding, too clayey.
Urban land	---	---	---	---	---	---
2079D:						
Menfro	Moderate: slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength, frost action.	Moderate: slope.
Urban land	---	---	---	---	---	---

Table 14.—Building Site Development—continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
2079E:						
Menfro	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope, frost action.	Severe: slope.
Urban land	---	---	---	---	---	---
2183A:						
Shaffton	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
Urban land	---	---	---	---	---	---
2384B:						
Edwardsville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness, frost action.	Severe: wetness.
Urban land	---	---	---	---	---	---
2477B:						
Winfield	Moderate: wetness.	Moderate: shrink-swell.	Moderate: wetness, shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength, frost action.	Slight.
Urban land	---	---	---	---	---	---
3038B:						
Rocher	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
3070L:						
Beaucoup	Severe: ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: low strength, ponding, flooding.	Severe: ponding, flooding.
3076A:						
Otter	Severe: ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: low strength, ponding, flooding.	Severe: ponding, flooding.
3083L:						
Wabash	Severe: ponding.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: shrink-swell, low strength, ponding.	Severe: ponding, flooding, too clayey.
3180A:						
Dupo	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness, shrink-swell.	Severe: flooding.	Severe: low strength, flooding, frost action.	Severe: flooding.
3288L:						
Petrolia	Severe: ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: low strength, ponding, flooding.	Severe: ponding, flooding.
3333A:						
Wakeland	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding, frost action.	Severe: wetness, flooding.

Table 14.–Building Site Development–continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
3334L:						
Birds----------	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
3336A:						
Wilbur---------	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding, frost action.	Severe: flooding.
3391A:						
Blake----------	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength, flooding, frost action.	Severe: flooding.
3394A, 3394B:						
Haynie---------	Moderate: wetness, flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength, flooding, frost action.	Severe: flooding.
3415A:						
Orion----------	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, flooding, frost action.	Severe: flooding.
3428A:						
Coffeen--------	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, frost action.	Severe: flooding.
3847L:						
Fluvaquents-----	Severe: cutbanks cave, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: ponding, flooding, frost action.	Severe: ponding, flooding.
Orthents--------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
5079C:						
Menfro, karst---	Moderate: slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength, frost action.	Moderate: slope.
5079D, 5079G:						
Menfro, karst---	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope, frost action.	Severe: slope.
8026A:						
Wagner---------	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, low strength, wetness.	Severe: wetness.
8070A:						
Beaucoup--------	Severe: ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: low strength, ponding, flooding.	Severe: ponding.

Table 14.–Building Site Development–continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
8071L:						
Darwin----------	Severe: ponding.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: shrink-swell, low strength, ponding.	Severe: ponding, too clayey.
8084A:						
Okaw------------	Severe: ponding.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: shrink-swell, low strength, ponding.	Severe: ponding.
8109A:						
Racoon----------	Severe: ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: low strength, ponding, flooding.	Severe: ponding.
8122C:						
Colp------------	Severe: wetness.	Severe: flooding, shrink-swell.	Severe: flooding, wetness.	Severe: flooding, shrink-swell.	Severe: shrink-swell, low strength.	Moderate: flooding.
8122D:						
Colp------------	Severe: wetness.	Severe: flooding, shrink-swell.	Severe: flooding, wetness.	Severe: flooding, shrink-swell, slope.	Severe: shrink-swell, low strength.	Moderate: flooding, slope.
8131B:						
Alvin-----------	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
8162A:						
Gorham----------	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness.
8180A:						
Dupo------------	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness, shrink-swell.	Severe: flooding.	Severe: low strength, flooding, frost action.	Moderate: wetness, flooding.
8183A:						
Shaffton--------	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
8284A:						
Tice------------	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength, flooding, frost action.	Moderate: wetness, flooding.
8304B:						
Landes----------	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: small stones.
8338A, 8338B, 8338C:						
Hurst-----------	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, low strength, flooding.	Moderate: wetness, flooding.

Table 14.–Building Site Development–continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
8338B:						
Hurst	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, low strength, flooding.	Moderate: wetness, flooding.
8338C:						
Hurst	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, low strength, flooding.	Moderate: wetness, flooding.
8394A:						
Haynie	Moderate: wetness, flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength, flooding, frost action.	Moderate: flooding.
8432A:						
Geff	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, flooding, frost action.	Moderate: wetness, flooding.
8434B:						
Ridgway	Moderate: dense layer, flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength, flooding, frost action.	Moderate: flooding.
8436B:						
Meadowbank	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength, flooding, frost action.	Moderate: flooding.
8489A:						
Hurst, sandy substratum	Severe: cutbanks cave, wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, low strength, flooding.	Moderate: wetness, flooding.
8524L:						
Zipp	Severe: ponding.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: shrink-swell, low strength, ponding.	Severe: ponding, too clayey.
8591A:						
Fults	Severe: cutbanks cave, wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, low strength, wetness.	Severe: wetness, too clayey.
8592A:						
Nameoki	Severe: cutbanks cave, wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, low strength, flooding.	Severe: too clayey.
8646A:						
Fluvaquents, loamy	Severe: cutbanks cave, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: ponding, flooding, frost action.	Severe: ponding.
8812F:						
Typic Hapludalfs	Severe: slope.	Severe: flooding, slope.	Severe: flooding, slope.	Severe: flooding, slope.	Severe: slope.	Severe: slope.

Table 15.--Sanitary Facilities

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "good," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
5C2, 5C3: Blair	Severe: wetness, percs slowly.	Severe: slope, wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
5D3: Blair	Severe: wetness, percs slowly.	Severe: slope, wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, slope, wetness.
8F2: Hickory	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
31A: Pierron	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding, too clayey, too acid	Severe: ponding.	Poor: too clayey, hard to pack, ponding.
37A: Worthen	Slight	Moderate: seepage.	Slight	Slight	Good.
37B: Worthen	Slight	Moderate: seepage, slope.	Slight	Slight	Good.
46A: Herrick	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
50A: Virden	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
75B: Drury	Moderate: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
79B: Menfro	Slight	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey.
79C2, 79C3: Menfro	Slight	Severe: slope.	Moderate: too clayey.	Slight	Fair: too clayey.
79D2, 79D3: Menfro	Moderate: slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope.
79F, 79F3, 79G: Menfro	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
81A: Littleton	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.

Table 15.--Sanitary Facilities--continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
90A:					
Bethalto	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
109A:					
Racoon	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Poor: ponding, thin layer.
112A:					
Cowden	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
113A:					
Oconee	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
113B:					
Oconee	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
267A, 267B:					
Caseyville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
283B:					
Downsouth	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
283C2:					
Downsouth	Severe: wetness.	Severe: slope, wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
384A, 384B:					
Edwardsville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
385A:					
Mascoutah	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Poor: ponding.
423A:					
Millstadt	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness, too acid	Severe: wetness.	Poor: wetness, too acid
423B:					
Millstadt	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: wetness, too acid	Severe: wetness.	Poor: wetness, too acid
433A:					
Floraville	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding, too clayey, too acid	Severe: ponding.	Poor: too clayey, hard to pack, ponding.
437B:					
Redbud	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Moderate: wetness, too clayey.	Moderate: wetness.	Fair: too clayey, wetness.

Table 15.—Sanitary Facilities—continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
437C2: Redbud	Severe: wetness, percs slowly.	Severe: slope.	Moderate: wetness, too clayey.	Moderate: wetness.	Fair: too clayey, wetness.
438B: Aviston	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
438C2: Aviston	Severe: wetness.	Severe: slope, wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
441B: Wakenda	Moderate: wetness.	Moderate: seepage, slope, wetness.	Moderate: too clayey.	Moderate: wetness.	Fair: too clayey.
441C2: Wakenda	Moderate: wetness.	Severe: slope.	Moderate: too clayey.	Moderate: wetness.	Fair: too clayey.
466A: Bartelso	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, wetness.
468A: Lakaskia	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
477B, 477B2: Winfield	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
477C2, 477C3: Winfield	Severe: wetness.	Severe: slope, wetness.	Moderate: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
491B2: Ruma	Moderate: wetness.	Moderate: seepage, slope, wetness.	Moderate: wetness.	Moderate: wetness.	Fair: too clayey.
491C3: Ruma	Moderate: wetness.	Severe: slope.	Moderate: wetness.	Moderate: wetness.	Fair: too clayey.
491D3: Ruma	Moderate: wetness, slope.	Severe: slope.	Moderate: wetness.	Moderate: wetness, slope.	Fair: too clayey, slope.
515C2, 515C3, 515D3: Bunkum	Severe: wetness, percs slowly.	Severe: slope, wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
517A, 517B: Marine	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.

Table 15.—Sanitary Facilities—continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
582B, 582B2: Homen	Severe: wetness, percs slowly.	Severe: wetness.	Moderate: wetness, too clayey.	Moderate: wetness.	Fair: too clayey, wetness.
582C2: Homen	Severe: wetness, percs slowly.	Severe: slope, wetness.	Moderate: wetness, too clayey.	Moderate: wetness.	Fair: too clayey, wetness.
585F2: Negley	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
801B: Orthents, silty	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
801D: Orthents, silty	Severe: wetness, percs slowly, slope.	Severe: slope, wetness.	Severe: wetness, slope.	Severe: wetness, slope.	Poor: slope.
802B: Orthents, loamy	Severe: percs slowly.	Moderate: slope, wetness.	Severe: wetness.	Moderate: wetness.	Fair: too clayey.
802D: Orthents, loamy	Severe: percs slowly, slope.	Severe: slope.	Severe: wetness, slope.	Severe: slope.	Poor: slope.
821G: Morristown	Severe: slope, percs slowly, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Severe: slope, unstable fill	Poor: small stones, slope.
824B: Swanwick	Severe: percs slowly.	Moderate: slope, wetness.	Moderate: too clayey.	Slight	Fair: too clayey.
825B: Lenzburg, acid substratum	Severe: percs slowly.	Severe: seepage.	Severe: seepage, too acid	Slight	Fair: too clayey, small stones
826D: Orthents, acid substratum	Severe: wetness, percs slowly.	Severe: seepage, slope, wetness.	Severe: seepage, wetness, too acid	Severe: wetness.	Poor: wetness.
871B: Lenzburg	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight	Fair: too clayey, small stones
871D: Lenzburg	Severe: percs slowly.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, small stones, slope.

Table 15.—Sanitary Facilities—continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
871G:					
Lenzburg	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
878C3:					
Coulterville	Severe: wetness, percs slowly.	Severe: slope.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Grantfork	Severe: wetness, percs slowly.	Severe: slope.	Severe: wetness.	Severe: wetness.	Poor: wetness.
880B2:					
Coulterville	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Darmstadt	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, excess sodium.	Severe: wetness.	Poor: wetness, excess sodium.
882A:					
Oconee	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
Darmstadt	Severe: wetness, percs slowly.	Slight	Severe: wetness, excess sodium.	Severe: wetness.	Poor: wetness, excess sodium.
Coulterville	Severe: wetness, percs slowly.	Slight	Severe: wetness.	Severe: wetness.	Poor: wetness.
882B:					
Oconee	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
Coulterville	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Darmstadt	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, excess sodium.	Severe: wetness.	Poor: wetness, excess sodium.
884C3:					
Bunkum	Severe: wetness, percs slowly.	Severe: slope, wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Coulterville	Severe: wetness, percs slowly.	Severe: slope.	Severe: wetness.	Severe: wetness.	Poor: wetness.
885A:					
Virden	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
Fosterburg	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding, too clayey.	Severe: ponding.	Poor: too clayey, hard to pack, ponding.

Table 15.–Sanitary Facilities–continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
886F3:					
Ruma	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Ursa	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
894A:					
Herrick	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
Biddle	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Severe: wetness.	Poor: hard to pack, wetness.
Piasa	Severe: ponding, percs slowly.	Slight	Severe: ponding, too clayey, excess sodium.	Severe: ponding.	Poor: too clayey, hard to pack, ponding.
897D3:					
Bunkum	Severe: wetness, percs slowly.	Severe: slope, wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Atlas	Severe: wetness, percs slowly.	Severe: slope.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack.
906C3:					
Redbud	Severe: wetness, percs slowly.	Severe: slope.	Moderate: wetness, too clayey.	Moderate: wetness.	Fair: too clayey, wetness.
Hurst	Severe: wetness, percs slowly.	Severe: slope.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
907D3:					
Redbud	Severe: wetness, percs slowly.	Severe: slope.	Moderate: wetness, slope, too clayey.	Moderate: wetness, slope.	Fair: too clayey, slope, wetness.
Colp	Severe: wetness, percs slowly.	Severe: slope.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack.
962F2, 962G:					
Sylvan	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Bold	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
993A:					
Cowden	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
Piasa	Severe: ponding, percs slowly.	Slight	Severe: ponding, too clayey, excess sodium.	Severe: ponding.	Poor: too clayey, hard to pack, ponding.

Table 15.-Sanitary Facilities-continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1071A:					
Darwin, undrained------	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, hard to pack, ponding.
1248A:					
McFain, undrained------	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Poor: ponding.
1288A:					
Petrolia, undrained------	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Poor: ponding.
2071L:					
Darwin----------	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, hard to pack, ponding.
Urban land------	---	---	---	---	---
2079D:					
Menfro----------	Moderate: slope, wetness.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope.
Urban land------	---	---	---	---	---
2079E:					
Menfro----------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Urban land------	---	---	---	---	---
2183A:					
Shaffton--------	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: thin layer.
Urban land------	---	---	---	---	---
2384B:					
Edwardsville----	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Urban land------	---	---	---	---	---
2477B:					
Winfield--------	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
Urban land------	---	---	---	---	---
3038B:					
Rocher----------	Severe: flooding.	Severe: seepage, flooding.	Severe: flooding, seepage, too sandy.	Severe: flooding, seepage.	Fair: too sandy, thin layer.

Table 15.–Sanitary Facilities–continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
3070L: Beaucoup	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Poor: ponding.
3076A: Otter	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Poor: ponding.
3083L: Wabash	Severe: flooding, ponding, percs slowly.	Severe: flooding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, hard to pack, ponding.
3180A: Dupo	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack.
3288L: Petrolia	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Poor: ponding.
3333A: Wakeland	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
3334L: Birds	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
3336A: Wilbur	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
3391A: Blake	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
3394A, 3394B: Haynie	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
3415A: Orion	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
3428A: Coffeen	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: wetness.

Table 15.-Sanitary Facilities-continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
3847L:					
Fluvaquents	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding, too sandy.	Severe: flooding, ponding.	Poor: too sandy, ponding.
Orthents	Severe: percs slowly, slope.	Severe: slope.	Severe: wetness, slope.	Severe: slope.	Poor: slope.
5079C:					
Menfro, karst	Moderate: slope, wetness.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope.
5079D, 5079G:					
Menfro, karst	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
8026A:					
Wagner	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
8070A:					
Beaucoup	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Poor: ponding.
8071L:					
Darwin	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, hard to pack, ponding.
8084A:					
Okaw	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, hard to pack, ponding.
8109A:					
Racoon	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Poor: ponding.
8122C, 8122D:					
Colp	Severe: flooding, wetness, percs slowly.	Severe: flooding, slope.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: too clayey, hard to pack.
8131B:					
Alvin	Severe: flooding, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage.	Severe: flooding, seepage.	Poor: thin layer.
8162A:					
Gorham	Severe: flooding, wetness, percs slowly.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy, wetness.
8180A:					
Dupo	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack.

Table 15.—Sanitary Facilities—continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
8183A:					
Shaffton	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: thin layer.
8284A:					
Tice	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: hard to pack.
8304B:					
Landes	Severe: flooding, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, too sandy.	Severe: flooding, seepage.	Poor: seepage, too sandy.
8338A, 8338B:					
Hurst	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
8338C:					
Hurst	Severe: flooding, wetness, percs slowly.	Severe: flooding, slope.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
8394A:					
Haynie	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
8432A:					
Geff	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Poor: wetness.
8434B:					
Ridgway	Severe: flooding.	Severe: seepage, flooding.	Severe: flooding, seepage.	Severe: flooding, seepage.	Fair: too clayey, thin layer.
8436B:					
Meadowbank	Severe: flooding.	Severe: seepage, flooding.	Severe: flooding, seepage.	Severe: flooding, seepage.	Fair: too clayey, thin layer.
8489A:					
Hurst, sandy. substratum	Severe: flooding, wetness, percs slowly.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
8524L:					
Zipp	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, hard to pack, ponding.
8591A:					
Fults	Severe: flooding, wetness, percs slowly.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: too clayey, hard to pack, wetness.

Table 15.–Sanitary Facilities–continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
8592A: Nameoki	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
8646A: Fluvaquents, loamy	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding, too sandy.	Severe: flooding, ponding.	Poor: too sandy, ponding.
8812F: Typic Hapludalfs	Severe: flooding.	Severe: flooding, slope.	Severe: flooding.	Severe: flooding.	Poor: slope.

Table 16.—Construction Materials

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
5C2, 5C3: Blair	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
5D3: Blair	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones, slope.
8F2: Hickory	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
31A: Pierron	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness, too acid.
37A, 37B: Worthen	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
46A: Herrick	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
50A: Virden	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
75B: Drury	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
79B, 79C2, 79C3: Menfro	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
79D2, 79D3: Menfro	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, slope.
79F, 79F3, 79G: Menfro	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
81A: Littleton	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
90A: Bethalto	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
109A: Racoon	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.

Table 16.—Construction Materials—continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
112A:				
Cowden----------	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
113A, 113B:				
Oconee----------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
267A, 267B:				
Caseyville------	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
283B, 283C2:				
Downsouth-------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
384A, 384B:				
Edwardsville----	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
385A:				
Mascoutah-------	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
423A, 423B:				
Millstadt-------	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, too acid.
433A:				
Floraville------	Poor: shrink-swell, low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness, too acid.
437B, 437C2:				
Redbud----------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
438B, 438C2:				
Aviston---------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
441B, 441C2:				
Wakenda---------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
466A:				
Bartelso--------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
468A:				
Lakaskia--------	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
477B, 477B2, 477C2:				
Winfield--------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
477C3:				
Winfield--------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.

Table 16.—Construction Materials—continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
491B2, 491C3: Ruma	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
491D3: Ruma	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, slope.
515C2, 515C3, 515D3: Bunkum	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
517A, 517B: Marine	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
582B, 582B2 582C2: Homen	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
585F2: Negley	Poor: slope.	Probable	Probable	Poor: small stones, slope.
801B: Orthents, silty	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
801D: Orthents, silty	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
802B: Orthents, loamy	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
802D: Orthents, loamy	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
821G: Morristown	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
824B: Swanwick	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, too clayey, small stones
825B: Lenzburg, acid substratum	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
826D: Orthents, acid substratum	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, wetness.

Table 16.—Construction Materials—continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
871B, 871D:				
Lenzburg	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
871G:				
Lenzburg	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
878C3:				
Coulterville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Grantfork	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones
880B2:				
Coulterville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Darmstadt	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, excess sodium.
882A:				
Oconee	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Darmstadt	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, excess sodium.
Coulterville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
882B:				
Oconee	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Coulterville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Darmstadt	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, excess sodium.
884C3:				
Bunkum	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Coulterville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
885A:				
Virden	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Fosterburg	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.

Table 16.—Construction Materials—continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
886F3:				
Ruma	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Ursa	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
894A:				
Herrick	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Biddle	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Piasa	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, excess sodium.
897D3:				
Bunkum	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Atlas	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
906C3:				
Redbud	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Hurst	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
907D3:				
Redbud	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, slope.
Colp	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
962F2, 962G:				
Sylvan	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Bold	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
993A:				
Cowden	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Piasa	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, excess sodium.
1071A:				
Darwin, undrained	Poor: shrink-swell, low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.

Table 16.—Construction Materials—continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
1248A:				
McFain, undrained	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, wetness.
1288A:				
Petrolia, undrained	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
2071L:				
Darwin	Poor: shrink-swell, low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Urban land	---	---	---	---
2079D:				
Menfro	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, slope.
Urban land	---	---	---	---
2079E:				
Menfro	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Urban land	---	---	---	---
2183A:				
Shaffton	Fair: wetness.	Probable	Improbable: too sandy.	Good.
Urban land	---	---	---	---
2384B:				
Edwardsville	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Urban land	---	---	---	---
2477B:				
Winfield	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
Urban land	---	---	---	---
3038B:				
Rocher	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
3070L:				
Beaucoup	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
3076A:				
Otter	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
3083L:				
Wabash	Poor: shrink-swell, low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.

Table 16.—Construction Materials—continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
3180A:				
Dupo	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.
3288L:				
Petrolia	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
3333A:				
Wakeland	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
3334L:				
Birds	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
3336A:				
Wilbur	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
3391A:				
Blake	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
3394A, 3394B:				
Haynie	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
3415A:				
Orion	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
3428A:				
Coffeen	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
3847L:				
Fluvaquents	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, wetness.
Orthents	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
5079C:				
Menfro, karst	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, slope.
5079D:				
Menfro, karst	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
5079G:				
Menfro, karst	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
8026A:				
Wagner	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
8070A:				
Beaucoup	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.

Table 16.—Construction Materials—continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
8071L: Darwin	Poor: shrink-swell, low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
8084A: Okaw	Poor: shrink-swell, low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
8109A: Racoon	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
8122C, 8122D: Colp	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
8131B: Alvin	Good	Probable	Improbable: too sandy.	Fair: thin layer.
8162A: Gorham	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too clayey, wetness.
8180A: Dupo	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.
8183A: Shaffton	Fair: wetness.	Probable	Improbable: too sandy.	Good.
8284A: Tice	Fair: shrink-swell, low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
8304B: Landes	Good	Probable	Improbable: too sandy.	Fair: too sandy, small stones, thin layer.
8338A, 8338B, 8338C: Hurst	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, too acid.
8394A: Haynie	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
8432A: Geff	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
8434B: Ridgway	Good	Probable	Improbable: too sandy.	Fair: too clayey, small stones, area reclaim.

Table 16.—Construction Materials—continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
8436B: Meadowbank	Good	Probable	Improbable: too sandy.	Fair: small stones, area reclaim.
8489A: Hurst, sandy substratum	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
8524L: Zipp	Poor: shrink-swell, low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
8591A: Fults	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too clayey, wetness.
8592A: Nameoki	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
8646A: Fluvaquents, loamy	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, wetness.
8812F: Typic Hapludalfs	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.

Table 17.—Water Management

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The infomation in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Limitations for-- Aquifer-fed excavated ponds	Features affecting-- Drainage	Features affecting-- Irrigation	Features affecting-- Terraces and diversions	Features affecting-- Grassed waterways
5C2, 5C3: Blair	Moderate: slope.	Severe: wetness.	Severe: slow refill.	Frost action, slope.	Slope, wetness, erodes easily.	Erodes easily, wetness.	Erodes easily.
5D3: Blair	Severe: slope.	Severe: wetness.	Severe: slow refill.	Frost action, slope.	Slope, wetness, erodes easily.	Slope, erodes easily, wetness.	Slope, erodes easily.
8F2: Hickory	Severe: slope.	Moderate: thin layer.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
31A: Pierron	Slight	Severe: ponding.	Severe: no water.	Ponding, percs slowly, frost action.	Ponding, percs slowly, erodes easily.	Erodes easily, ponding, percs slowly.	Wetness, erodes easily, percs slowly.
37A: Worthen	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water	Favorable	Erodes easily	Erodes easily.
37B: Worthen	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope	Erodes easily	Erodes easily.
46A: Herrick	Slight	Severe: wetness.	Severe: slow refill.	Frost action	Wetness	Erodes easily, wetness.	Erodes easily.
50A: Virden	Slight	Severe: wetness.	Severe: slow refill.	Frost action	Wetness	Erodes easily, wetness.	Wetness, erodes easily.
75B: Drury	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
79B, 79C2, 79C3: Menfro	Moderate: seepage, slope.	Slight	Severe: no water.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
79D2, 79D3, 79F, 79f3, 79G: Menfro	Severe: slope.	Slight	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
81A: Littleton	Moderate: seepage.	Severe: wetness, piping.	Moderate: slow refill.	Frost action	Wetness	Erodes easily, wetness.	Wetness, erodes easily.
90A: Bethalto	Moderate: seepage.	Severe: wetness.	Moderate: slow refill.	Frost action	Wetness, erodes easily.	Erodes easily, wetness.	Wetness, erodes easily.
109A: Racoon	Slight	Severe: piping, ponding.	Severe: slow refill.	Ponding, percs slowly, frost action.	Ponding, percs slowly, erodes easily.	Erodes easily, ponding.	Wetness, erodes easily, percs slowly.

Table 17.—Water Management—continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Limitations for-- Aquifer-fed excavated ponds	Features affecting-- Drainage	Features affecting-- Irrigation	Features affecting-- Terraces and diversions	Features affecting-- Grassed waterways
112A: Cowden	Slight	Severe: wetness.	Severe: no water.	Percs slowly, frost action.	Wetness, percs slowly.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
113A: Oconee	Slight	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly, frost action.	Wetness, percs slowly.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
113B: Oconee	Moderate: slope.	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly, frost action, slope.	Wetness, percs slowly, slope.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
267A: Caseyville	Moderate: seepage.	Severe: wetness.	Moderate: slow refill.	Frost action	Wetness, erodes easily.	Erodes easily, wetness.	Wetness, erodes easily.
267B: Caseyville	Moderate: seepage, slope.	Severe: wetness.	Moderate: slow refill.	Frost action, slope.	Slope, wetness, erodes easily.	Erodes easily, wetness.	Wetness, erodes easily.
283B, 283C: Downsouth	Moderate: seepage, slope.	Severe: wetness.	Moderate: slow refill.	Frost action, slope.	Slope, wetness, erodes easily.	Erodes easily, wetness.	Erodes easily.
384A: Edwardsville	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Frost action	Wetness	Erodes easily, wetness.	Wetness, erodes easily.
384B: Edwardsville	Moderate: seepage, slope.	Severe: piping, wetness.	Moderate: slow refill.	Frost action, slope.	Slope, wetness.	Erodes easily, wetness.	Wetness, erodes easily.
385A: Mascoutah	Moderate: seepage.	Severe: ponding.	Moderate: slow refill.	Ponding, frost action.	Ponding	Erodes easily, ponding.	Wetness, erodes easily.
423A: Millstadt	Slight	Severe: wetness.	Severe: no water.	Frost action, too acid.	Wetness, percs slowly.	Erodes easily, wetness.	Wetness, erodes easily.
423B: Millstadt	Moderate: slope.	Severe: wetness.	Severe: no water.	Frost action, slope, too acid.	Slope, wetness, percs slowly.	Erodes easily, wetness.	Wetness, erodes easily.
433A: Floraville	Slight	Severe: ponding.	Severe: no water.	Ponding, percs slowly, frost action.	Ponding, percs slowly, erodes easily.	Erodes easily, ponding, percs slowly.	Wetness, erodes easily, percs slowly.
437B, 437C2: Redbud	Moderate: slope.	Moderate: wetness.	Severe: no water.	Frost action, slope.	Slope, wetness, percs slowly.	Erodes easily, wetness.	Erodes easily.
438B, 438C2: Aviston	Moderate: seepage, slope.	Moderate: wetness.	Moderate: deep to water, slow refill.	Frost action, slope.	Slope, wetness.	Erodes easily, wetness.	Erodes easily.

Table 17.—Water Management—continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
441B, 441C2: Wakenda	Moderate: seepage, slope.	Slight	Severe: no water.	Deep to water	Slope	Favorable	Favorable.
466A: Bartelso	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly, frost action.	Wetness, percs slowly.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
468A: Lakaskia	Slight	Severe: wetness.	Severe: no water.	Percs slowly, frost action.	Wetness, percs slowly.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
477B, 477B2, 47C2, 477C3: Winfield	Moderate: seepage, slope.	Moderate: thin layer, wetness.	Severe: no water.	Frost action, slope.	Slope, erodes easily.	Erodes easily, wetness.	Erodes easily.
491B2, 491C3: Ruma	Moderate: seepage, slope.	Moderate: wetness.	Moderate: deep to water, slow refill.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
491D3: Ruma	Severe: slope.	Moderate: wetness.	Moderate: deep to water, slow refill.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
515C2, 515C3: Bunkum	Moderate: slope.	Severe: wetness.	Severe: slow refill.	Frost action, slope.	Slope, wetness, erodes easily.	Erodes easily, wetness.	Wetness, erodes easily.
515D3: Bunkum	Severe: slope.	Severe: wetness.	Severe: slow refill.	Frost action, slope.	Slope, wetness, erodes easily.	Slope, erodes easily, wetness.	Wetness, slope, erodes easily.
517A: Marine	Slight	Moderate: thin layer, piping, wetness.	Severe: no water.	Percs slowly, frost action.	Wetness, percs slowly.	Erodes easily, wetness.	Wetness, erodes easily, percs slowly.
517B: Marine	Moderate: slope.	Moderate: thin layer, piping, wetness.	Severe: no water.	Percs slowly, frost action, slope.	Slope, wetness, percs slowly.	Erodes easily, wetness.	Wetness, erodes easily, percs slowly.
582B, 582B2, 582C2: Homen	Moderate: slope.	Moderate: thin layer, wetness.	Severe: no water.	Frost action, slope.	Slope, wetness, erodes easily.	Erodes easily, wetness.	Erodes easily.
585F2: Negley	Severe: seepage, slope.	Moderate: thin layer.	Severe: no water.	Deep to water	Slope	Slope	Slope.
801B: Orthents, silty	Moderate: seepage.	Severe: piping.	Severe: slow refill.	Frost action	Wetness, erodes easily.	Erodes easily, wetness.	Erodes easily.

Table 17.—Water Management—continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
801D:							
Orthents, silty	Severe: slope.	Severe: piping.	Severe: slow refill.	Frost action, slope.	Slope, wetness, erodes easily.	Slope, erodes easily, wetness.	Slope, erodes easily.
802B:							
Orthents, loamy	Slight	Moderate: piping.	Severe: slow refill.	Deep to water	Rooting depth, erodes easily.	Erodes easily	Erodes easily, rooting depth.
802D:							
Orthents, loamy	Severe: slope.	Moderate: piping.	Severe: slow refill.	Deep to water	Slope, rooting depth, erodes easily.	Slope, erodes easily.	Slope, erodes easily, rooting depth.
821G:							
Morristown	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones.	Large stones, slope, droughty.
824B:							
Swanwick	Moderate: slope.	Severe: piping.	Severe: no water.	Deep to water	Percs slowly, rooting depth, slope.	Erodes easily	Erodes easily, rooting depth.
825B:							
Lenzburg, acid substratum	Moderate: seepage, slope.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Slope, erodes easily, too acid.	Large stones, erodes easily.	Erodes easily.
826D:							
Orthents, acid substratum	Severe: seepage, slope.	Severe: piping, wetness.	Severe: slow refill.	Frost action, slope, too acid.	Slope, wetness, erodes easily.	Slope, erodes easily, wetness.	Wetness, slope, erodes easily.
871B:							
Lenzburg	Moderate: slope.	Moderate: piping.	Severe: no water.	Deep to water	Slope	Favorable	Favorable.
871D, 871G:							
Lenzburg	Severe: slope.	Moderate: piping.	Severe: no water.	Deep to water	Slope	Slope	Slope.
878C3:							
Coulterville	Moderate: slope.	Severe: piping.	Severe: no water.	Percs slowly, frost action, slope.	Slope, wetness, percs slowly.	Erodes easily, wetness.	Wetness, erodes easily.
Grantfork	Moderate: slope.	Moderate: piping, wetness.	Severe: no water.	Percs slowly, frost action, slope.	Slope, wetness, percs slowly.	Erodes easily, wetness.	Wetness, erodes easily.
880B2:							
Coulterville	Moderate: slope.	Severe: piping.	Severe: no water.	Percs slowly, frost action, slope.	Slope, wetness, percs slowly.	Erodes easily, wetness.	Wetness, erodes easily.
Darmstadt	Moderate: slope.	Severe: excess sodium.	Severe: no water.	Percs slowly, frost action, slope.	Slope, wetness, percs slowly.	Erodes easily, wetness.	Wetness, excess sodium.
882A:							
Oconee	Slight	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly, frost action.	Wetness, percs slowly.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
Darmstadt	Slight	Severe: excess sodium.	Severe: no water.	Percs slowly, frost action.	Wetness, percs slowly.	Erodes easily, wetness.	Wetness, excess sodium.

Table 17.—Water Management—continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
882A:							
Coulterville	Slight	Severe: piping.	Severe: no water.	Percs slowly, frost action.	Wetness, percs slowly.	Erodes easily, wetness.	Wetness, erodes easily.
882B:							
Oconee	Moderate: slope.	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly, frost action, slope.	Wetness, percs slowly, slope.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
Coulterville	Moderate: slope.	Severe: piping.	Severe: no water.	Percs slowly, frost action, slope.	Slope, wetness, percs slowly.	Erodes easily, wetness.	Wetness, erodes easily.
Darmstadt	Moderate: slope.	Severe: excess sodium.	Severe: no water.	Percs slowly, frost action, slope.	Slope, wetness, percs slowly.	Erodes easily, wetness.	Wetness, excess sodium.
884C3:							
Bunkum	Moderate: slope.	Severe: wetness.	Severe: slow refill.	Frost action, slope.	Slope, wetness, erodes easily.	Erodes easily, wetness.	Wetness, erodes easily.
Coulterville	Moderate: slope.	Severe: piping.	Severe: no water.	Percs slowly, frost action, slope.	Slope, wetness, percs slowly.	Erodes easily, wetness.	Wetness, erodes easily.
885A:							
Virden	Slight	Severe: wetness.	Severe: slow refill.	Frost action	Wetness	Erodes easily, wetness.	Wetness, erodes easily.
Fosterburg	Slight	Severe: ponding.	Severe: slow refill.	Ponding, percs slowly, frost action.	Ponding, percs slowly.	Erodes easily, ponding, percs slowly.	Wetness, erodes easily, percs slowly.
886F3:							
Ruma	Severe: slope.	Moderate: wetness.	Moderate: deep to water, slow refill.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
Ursa	Severe: slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope, droughty, percs slowly.	Slope, erodes easily, percs slowly.	Slope, erodes easily, percs slowly.
894A:							
Herrick	Slight	Severe: wetness.	Severe: slow refill.	Frost action	Wetness	Erodes easily, wetness.	Erodes easily.
Biddle	Slight	Severe: wetness.	Severe: no water.	Percs slowly, frost action.	Wetness, percs slowly.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
Piasa	Slight	Severe: hard to pack, ponding, excess sodium.	Severe: no water.	Ponding, percs slowly, frost action.	Ponding, percs slowly, erodes easily.	Erodes easily, ponding, percs slowly.	Wetness, excess sodium, erodes easily.
897D3:							
Bunkum	Severe: slope.	Severe: wetness.	Severe: slow refill.	Frost action, slope.	Slope, wetness, erodes easily.	Slope, erodes easily, wetness.	Wetness, slope, erodes easily.
Atlas	Severe: slope.	Severe: hard to pack, wetness.	Severe: no water.	Percs slowly, frost action, slope.	Slope, wetness, droughty.	Slope, erodes easily, wetness.	Wetness, slope, erodes easily.

Table 17.--Water Management--continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
906C3:							
Redbud	Moderate: slope.	Moderate: wetness.	Severe: no water.	Frost action, slope.	Slope, wetness, percs slowly.	Erodes easily, wetness.	Erodes easily.
Hurst	Moderate: slope.	Severe: wetness.	Severe: slow refill.	Percs slowly, slope.	Slope, wetness, percs slowly.	Erodes easily, wetness.	Wetness, erodes easily.
907D3:							
Redbud	Severe: slope.	Moderate: wetness.	Severe: no water.	Frost action, slope.	Slope, wetness, percs slowly.	Slope, erodes easily, wetness.	Slope, erodes easily.
Colp	Severe: slope.	Moderate: hard to pack, wetness.	Severe: slow refill.	Percs slowly, frost action, slope.	Slope, wetness, percs slowly.	Slope, erodes easily, wetness.	Slope, erodes easily, percs slowly.
962F2, 962G:							
Sylvan	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
Bold	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
993A:							
Cowden	Slight	Severe: wetness.	Severe: no water.	Percs slowly, frost action.	Wetness, percs slowly.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
Piasa	Slight	Severe: hard to pack, ponding, excess sodium.	Severe: no water.	Ponding, percs slowly, frost action.	Ponding, percs slowly, erodes easily.	Erodes easily, ponding, percs slowly.	Wetness, excess sodium, erodes easily.
1071A:							
Darwin, undrained	Slight	Severe: hard to pack, ponding.	Severe: slow refill.	Ponding, percs slowly, flooding.	Ponding, slow intake, percs slowly.	Ponding, percs slowly.	Wetness, percs slowly.
1248A:							
McFain, undrained	Moderate: seepage.	Severe: piping, ponding.	Severe: slow refill.	Ponding, percs slowly, flooding.	Ponding, slow intake, percs slowly.	Ponding	Wetness, percs slowly.
1288A:							
Petrolia, undrained	Slight	Severe: ponding.	Severe: slow refill.	Ponding, flooding, frost action.	Ponding, flooding.	Ponding	Wetness.
2071L:							
Darwin	Slight	Severe: hard to pack, ponding.	Severe: slow refill.	Ponding, percs slowly, flooding.	Ponding, slow intake, percs slowly.	Ponding, percs slowly.	Wetness, percs slowly.
Urban land	---	---	---	---	---	---	---
2079D, 2079E:							
Menfro	Severe: slope.	Slight	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
Urban land	---	---	---	---	---	---	---

Table 17.—Water Management—continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
2183A:							
Shaffton	Severe: seepage.	Severe: piping.	Severe: cutbanks cave.	Flooding	Wetness, flooding.	Erodes easily, wetness.	Erodes easily.
Urban Land	---	---	---	---	---	---	---
2384B:							
Edwardsville	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Frost action	Wetness	Erodes easily, wetness.	Wetness, erodes easily.
Urban land	---	---	---	---	---	---	---
2477B:							
Winfield	Moderate: seepage, slope.	Moderate: thin layer, wetness.	Severe: no water.	Frost action, slope.	Slope, erodes easily.	Erodes easily, wetness.	Erodes easily.
Urban land	---	---	---	---	---	---	---
3038B:							
Rocher	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Slope	Favorable	Favorable.
3070L:							
Beaucoup	Slight	Severe: ponding.	Severe: slow refill.	Ponding, flooding, frost action.	Ponding, flooding.	Ponding	Wetness.
3076A:							
Otter	Moderate: seepage.	Severe: piping, ponding.	Moderate: slow refill.	Ponding, flooding, frost action.	Ponding, flooding.	Erodes easily, ponding.	Wetness, erodes easily.
3083L:							
Wabash	Slight	Severe: ponding.	Severe: slow refill.	Ponding, percs slowly, flooding.	Ponding, slow intake, percs slowly.	Ponding, percs slowly.	Wetness, percs slowly.
3180A:							
Dupo	Moderate: seepage.	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding, frost action.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Erodes easily, percs slowly.
3288L:							
Petrolia	Slight	Severe: ponding.	Severe: slow refill.	Ponding, flooding, frost action.	Ponding, flooding.	Ponding	Wetness.
3333A:							
Wakeland	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Flooding, frost action.	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Wetness, erodes easily.
3334L:							
Birds	Slight	Severe: wetness.	Severe: slow refill.	Flooding, frost action.	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Wetness, erodes easily.
3336A:							
Wilbur	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Flooding, frost action.	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Erodes easily.
3391A:							
Blake	Moderate: seepage.	Severe: piping.	Moderate: deep to water, slow refill.	Flooding, frost action.	Wetness, flooding.	Erodes easily, wetness.	Erodes easily.

Table 17.--Water Management--continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
3394A: Haynie	Moderate: seepage.	Severe: piping.	Moderate: deep to water, slow refill.	Deep to water	Erodes easily, flooding.	Erodes easily	Erodes easily.
3394B: Haynie	Moderate: seepage, slope.	Severe: piping.	Moderate: deep to water, slow refill.	Deep to water	Slope, erodes easily, flooding.	Erodes easily	Erodes easily.
3415A: Orion	Moderate: seepage.	Severe: piping, wetness.	Severe: cutbanks cave.	Flooding, frost action.	Wetness	Erodes easily, wetness.	Wetness, erodes easily.
3428A: Coffeen	Severe: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Flooding, frost action.	Wetness, flooding.	Wetness	Wetness.
3847L: Fluvaquents	Moderate: seepage.	Severe: piping, ponding.	Severe: cutbanks cave.	Ponding, flooding, frost action.	Ponding, droughty.	Erodes easily, ponding, too sandy.	Wetness, erodes easily, droughty.
Orthents	Severe: slope.	Moderate: piping.	Severe: slow refill.	Deep to water	Slope, rooting depth, erodes easily.	Slope, erodes easily.	Slope, erodes easily, rooting depth.
5079C, 5079D, 5079G: Menfro, karst	Severe: slope.	Slight	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
8026A: Wagner	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, percs slowly, flooding.	Wetness, percs slowly.	Wetness, percs slowly.
8070A: Beaucoup	Slight	Severe: ponding.	Severe: slow refill.	Ponding, flooding, frost action.	Ponding, flooding.	Ponding	Wetness.
8071L: Darwin	Slight	Severe: hard to pack, ponding.	Severe: slow refill.	Ponding, percs slowly, flooding.	Ponding, slow intake, percs slowly.	Ponding, percs slowly.	Wetness, percs slowly.
8084A: Okaw	Slight	Severe: hard to pack, ponding.	Severe: slow refill.	Ponding, percs slowly, flooding.	Ponding, percs slowly, erodes easily.	Erodes easily, ponding, percs slowly.	Wetness, erodes easily, percs slowly.
8109A: Racoon	Slight	Severe: piping, ponding.	Severe: slow refill.	Ponding, percs slowly, flooding.	Ponding, percs slowly, erodes easily.	Erodes easily, ponding, percs slowly.	Wetness, erodes easily, percs slowly.
8122C: Colp	Moderate: slope.	Moderate: hard to pack, wetness.	Severe: slow refill.	Percs slowly, flooding, frost action.	Slope, wetness, percs slowly.	Erodes easily, wetness.	Erodes easily, percs slowly.
8122D: Colp	Severe: slope.	Moderate: hard to pack, wetness.	Severe: slow refill.	Percs slowly, flooding, frost action.	Slope, wetness, percs slowly.	Slope, erodes easily, wetness.	Slope, erodes easily, percs slowly.

Table 17.--Water Management--continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
8131B: Alvin----------	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water--	Slope, soil blowing	Favorable------	Favorable.
8162A: Gorham---------	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: slow refill, cutbanks cave.	Flooding, frost action.	Wetness--------	Wetness, too sandy.	Wetness, rooting depth.
8180A: Dupo-----------	Moderate: seepage.	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding, frost action.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Erodes easily, percs slowly.
8183A: Shaffton-------	Severe: seepage.	Severe: piping.	Severe: cutbanks cave.	Flooding------	Wetness, flooding.	Erodes easily, wetness.	Erodes easily.
8284A: Tice-----------	Moderate: seepage.	Severe: wetness.	Moderate: slow refill.	Flooding, frost action.	Wetness--------	Wetness--------	Favorable.
8304B: Landes---------	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water--	Slope----------	Too sandy, soil blowing	Favorable.
8338A: Hurst----------	Slight-----	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, percs slowly.	Erodes easily, wetness.	Wetness, erodes easily.
8338B, 8338C: Hurst----------	Moderate: slope.	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding, slope.	Slope, wetness, percs slowly.	Erodes easily, wetness.	Wetness, erodes easily.
8394A: Haynie---------	Moderate: seepage.	Severe: piping.	Moderate: deep to water, slow refill.	Deep to water--	Erodes easily, flooding.	Erodes easily--	Erodes easily.
8432A: Geff-----------	Moderate: seepage.	Severe: piping, wetness.	Severe: cutbanks cave.	Flooding, frost action.	Wetness, rooting depth, erodes easily.	Erodes easily, wetness.	Wetness, erodes easily, rooting depth.
8434B: Ridgway--------	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water--	Slope, erodes easily, flooding.	Erodes easily--	Erodes easily.
8436B: Meadowbank------	Severe: seepage.	Moderate: thin layer.	Severe: no water.	Deep to water--	Slope, flooding.	Favorable------	Favorable.
8489A: Hurst, Sandy, Substratum-----	Severe: seepage.	Severe: wetness.	Severe: slow refill, cutbanks cave.	Percs slowly, flooding.	Wetness, percs slowly.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
8524L: Zipp-----------	Slight-----	Severe: ponding.	Severe: slow refill.	Ponding, percs slowly, flooding.	Ponding, slow intake, percs slowly.	Ponding, percs slowly.	Wetness, percs slowly.

Table 17.—Water Management—continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
8591A: Fults	Severe: seepage.	Severe: wetness.	Severe: slow refill, cutbanks cave.	Percs slowly, flooding, frost action.	Wetness, slow intake, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
8592A: Nameoki	Moderate: seepage.	Severe: piping, wetness.	Severe: slow refill, cutbanks cave.	Percs slowly, flooding, frost action.	Wetness, slow intake, percs slowly.	Wetness	Wetness, percs slowly.
8646A: Fluvaquents, Loamy	Moderate: seepage.	Severe: piping, ponding.	Severe: cutbanks cave.	Ponding, flooding, frost action.	Ponding, droughty.	Erodes easily, ponding, too sandy.	Wetness, erodes easily, droughty.
8812F: Typic Hapludalfs	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope	Slope	Slope, rooting depth.

Table 18.--Engineering Index Properties

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
5C2:												
Blair----------	0-7	Silt loam------	CL-ML, CL	A-4, A-6	0	0-2	95-100	90-100	90-100	85-95	20-35	5-15
	7-22	Silty clay loam, clay loam, silt loam.	CL	A-6, A-7	0	0-5	95-100	90-100	90-100	80-100	30-50	15-30
	22-50	Silty clay loam, clay loam, silt loam.	CL	A-6, A-7	0	0-5	95-100	90-100	85-100	70-95	30-50	15-30
	50-80	Silty clay loam, clay loam, silt loam.	CL	A-6, A-7	0	0-5	95-100	90-100	85-100	70-90	20-40	10-25
5C3, 5D3:												
Blair----------	0-5	Silt loam------	CL-ML, CL	A-4, A-6	0	0-2	95-100	90-100	90-100	85-95	20-35	5-15
	5-20	Silty clay loam, clay loam, silt loam.	CL	A-6, A-7	0	0-5	95-100	90-100	90-100	80-100	30-50	15-30
	20-47	Silty clay loam, clay loam, silt loam.	CL	A-6, A-7	0	0-5	95-100	90-100	85-100	70-95	30-50	15-30
	47-80	Silty clay loam, clay loam, silt loam.	CL	A-6, A-7	0	0-5	95-100	90-100	85-100	70-90	20-40	10-25
8F2:												
Hickory--------	0-12	Silt loam------	CL	A-6, A-4	0	0-5	95-100	90-100	75-100	55-100	20-35	8-15
	12-46	Clay loam, silty clay loam, gravelly clay loam.	CL	A-6, A-7	0-1	0-5	85-100	70-100	65-95	50-85	30-50	15-30
	46-58	Sandy loam, loam, gravelly clay loam.	CL-ML, CL, SC-SM, SC	A-4, A-6, A-2	0-1	0-5	85-100	70-95	45-95	25-75	20-40	5-20
	58-80	Sandy loam, loam, gravelly clay loam.	CL-ML, CL, SC, SC-SM	A-4, A-6, A-2	0-1	0-5	85-100	70-95	45-95	25-75	20-40	5-20
31A:												
Pierron--------	0-8	Silt loam------	CL, CL-ML	A-4, A-6	0	0	100	98-100	90-100	85-100	20-40	5-15
	8-20	Silt loam, silt	ML, CL-ML, CL	A-4, A-6	0	0	100	98-100	90-100	85-100	20-35	2-15
	20-36	Silty clay, silty clay loam.	CH	A-7-6	0	0	100	100	95-100	93-100	50-60	30-35
	36-66	Silty clay loam, silty clay.	CH, CL	A-7-6	0	0	100	100	95-100	93-100	40-60	20-35
	66-80	Silt loam, loam, clay loam.	CL	A-6, A-7	0	0	100	95-100	90-100	75-100	30-45	10-25
37A, 37B:												
Worthen--------	0-29	Silt loam------	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	80-100	25-40	7-21
	29-64	Silt loam------	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	80-100	25-40	7-21
	64-80	Silt loam------	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	80-100	25-40	7-21

Table 18.—Engineering Index Properties—continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
46A:												
Herrick----------	0-17	Silt loam------	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	30-40	5-15
	17-43	Silty clay loam, silty clay.	CH, CL	A-7-6	0	0	100	100	95-100	90-100	45-60	25-40
	43-64	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	35-50	20-35
	64-80	Silt loam, loam, clay loam.	CL	A-6	0	0	100	100	90-100	80-100	30-40	10-20
50A:												
Virden-----------	0-15	Silt loam------	CL	A-7, A-6	0	0	100	100	95-100	95-100	30-45	10-20
	15-74	Silty clay, silty clay loam.	CH, CL	A-7-6	0	0	100	100	95-100	95-100	40-60	20-40
	74-86	Silty clay loam, silt loam.	CL	A-7, A-6	0	0	100	100	95-100	90-100	30-50	10-25
75B:												
Drury------------	0-7	Silt loam------	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	95-100	90-100	20-35	NP-15
	7-43	Silt loam------	CL	A-6, A-4	0	0	100	95-100	95-100	90-100	25-35	8-15
	43-80	Silt loam, loam, very fine sandy loam.	CL-ML, CL	A-4, A-6	0	0	100	95-100	95-100	55-95	20-30	5-15
79B:												
Menfro-----------	0-10	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	10-62	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	62-80	Silt loam------	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
79C2, 79D2:												
Menfro-----------	0-7	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	7-56	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	56-80	Silt loam------	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
79C3, 79D3, 79F3:												
Menfro-----------	0-5	Silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	25-40	11-20
	5-50	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	50-80	Silt loam------	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
79F, 79G:												
Menfro-----------	0-9	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	9-52	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	52-80	Silt loam------	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
81A:												
Littleton--------	0-10	Silt loam------	CL	A-4, A-6	0	0	100	100	95-100	90-100	25-40	7-20
	10-33	Silt loam------	CL	A-4, A-6	0	0	100	100	95-100	90-100	25-40	7-20
	33-80	Silt loam------	CL-ML, CL	A-4, A-6, A-7	0	0	100	100	95-100	80-100	20-45	5-20
90A:												
Bethalto---------	0-8	Silt loam------	CL	A-6	0	0	100	100	95-100	92-100	30-35	10-15
	8-15	Silt loam------	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	92-100	20-35	5-15
	15-70	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	98-100	95-100	30-45	10-20
	70-80	Silt loam------	CL	A-6	0	0	100	100	98-100	95-100	30-35	10-15

Table 18.–Engineering Index Properties–continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
109A:												
Racoon----------	0-6	Silt loam------	CL	A-4, A-6	0	0	100	100	95-100	90-100	20-40	8-20
	6-26	Silt loam------	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	20-40	5-20
	26-39	Silty clay loam	CL, CH	A-6, A-7	0	0	100	100	95-100	90-100	35-60	15-30
	39-47	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-50	15-30
	47-60	Silty clay loam, silt loam, loam.	CL, ML, CL-ML	A-4, A-6, A-7	0	0	95-100	90-100	75-100	60-90	25-45	3-20
112A:												
Cowden----------	0-8	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-25
	8-19	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-25
	19-50	Silty clay loam, silty clay.	CH	A-7-6	0	0	100	100	95-100	95-100	50-60	30-35
	50-80	Silt loam, silty clay loam, loam.	CL, ML	A-6, A-7-6	0	0	100	95-100	85-100	70-100	30-50	15-30
113A, 113B:												
Oconee----------	0-8	Silt loam------	cl	A-6	0	0	100	100	95-100	90-100	30-40	15-25
	8-16	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-25
	16-47	Silty clay loam, silty clay.	CH	A-7	0	0	100	100	95-100	90-100	50-60	30-35
	47-58	Silt loam, silty clay loam.	CL	A-6, A-7	0	0	100	100	85-100	70-100	40-50	20-30
	58-80	Silt loam, loam	CL	A-6, A-7-6	0	0	100	100	90-100	85-100	30-40	15-25
267A, 267B:												
Caseyville------	0-7	Silt loam------	CL	A-4, A-6	0	0	100	100	95-100	90-100	28-35	9-15
	7-16	Silt loam, silty clay loam.	CL	A-4, A-6	0	0	100	100	95-100	90-100	25-40	9-20
	16-62	Silty clay loam, silt loam.	CL	A-4, A-6, A-7-6	0	0	100	100	98-100	93-100	30-45	9-20
	62-80	Silt loam------	CL	A-4, A-6	0	0	100	100	98-100	93-100	28-35	9-15
283B:												
Downsouth-------	0-13	Silt loam------	CL, ML	A-6	0	0	100	100	98-100	95-100	30-40	9-15
	13-65	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	98-100	95-100	35-45	15-20
	65-80	Silt loam------	CL, ML	A-6	0	0	100	100	98-100	95-100	30-40	9-15
283C2:												
Downsouth-------	0-9	Silt loam------	CL, ML	A-6	0	0	100	100	98-100	95-100	30-40	9-15
	9-58	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	98-100	95-100	35-45	15-20
	58-80	Silt loam------	CL, ML	A-6	0	0	100	100	98-100	95-100	30-40	9-15
384A, 384B:												
Edwardsville----	0-15	Silt loam------	CL, ML	A-6	0	0	100	100	98-100	95-100	28-40	9-20
	15-57	Silt loam, silty clay loam.	CL, ML	A-6, A-7-6	0	0	100	100	98-100	95-100	30-45	9-20
	57-80	Silt loam------	CL, ML	A-6	0	0	100	100	98-100	95-100	28-35	9-15

Table 18.-Engineering Index Properties-continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
385A: Mascoutah	0-21	Silty clay loam	CL	A-6, A-7	0	0	100	100	98-100	95-100	30-45	15-24
	21-58	Silty clay loam	CL	A-6, A-7	0	0	100	100	98-100	95-100	30-45	15-24
	58-66	Silty clay loam, silt loam.	CL	A-6	0	0	100	100	98-100	95-100	30-40	10-20
	66-80	Silt loam, silty clay loam.	CL	A-6	0	0	100	100	98-100	95-100	30-40	10-20
423A, 432B: Millstadt	0-9	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	85-100	25-35	5-15
	9-18	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	85-100	25-40	5-20
	18-53	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	0	100	100	95-100	93-100	30-45	10-20
	53-80	Silty clay, silty clay loam, silt loam.	CL, CH	A-6, A-7-6	0	0	100	100	90-100	85-100	35-60	15-35
433A: Floraville	0-9	Silt loam	CL	A-6	0	0	100	98-100	90-100	85-100	30-40	10-20
	9-18	Silt loam, sand	CL	A-6	0	0	100	98-100	90-100	85-100	25-40	10-20
	18-44	Silty clay loam, silty clay.	CL, CH	A-7-6	0	0	100	100	95-100	93-100	40-60	20-30
	44-70	Silty clay, silty clay loam, silt loam.	CL, CH	A-7-6	0	0	100	100	90-100	85-100	40-70	20-45
	70-94	Silt loam, silty clay loam, silty clay.	CL, CH	A-6, A-7-6	0	0	100	100	90-100	85-100	35-60	15-35
437B: Redbud	0-9	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	93-100	25-35	5-15
	9-16	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	93-100	25-40	5-20
	16-45	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	0	100	100	95-100	93-100	30-45	15-24
	45-80	Silty clay loam, silty clay, silt loam.	CL, CH	A-6, A-7-6	0	0	100	100	90-100	85-100	35-60	15-35
437C2: Redbud	0-6	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	93-100	25-35	5-15
	6-12	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	93-100	25-40	5-20
	12-40	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	0	100	100	95-100	93-100	30-45	15-24
	40-80	Silty clay loam, silty clay, silt loam.	CL, CH	A-6, A-7-6	0	0	100	100	90-100	85-100	35-60	15-35

Table 18.--Engineering Index Properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
438B:												
Aviston	0-16	Silt loam	CL	A-6	0	0	100	100	95-100	93-100	25-35	10-15
	16-67	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	0	100	100	95-100	93-100	35-45	15-25
	67-80	Silt loam, silty clay loam.	CL	A-6	0	0	100	98-100	90-100	85-100	25-40	10-20
438C2:												
Aviston	0-10	Silt loam	CL	A-6	0	0	100	100	95-100	93-100	25-35	10-15
	10-57	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	0	100	100	95-100	93-100	35-45	15-25
	57-80	Silt loam, silty clay loam.	CL	A-6	0	0	100	98-100	90-100	85-100	25-40	10-20
441B:												
Wakenda	0-13	Silt loam	CL, ML	A-6, A-4	0	0	100	100	100	90-100	30-40	5-15
	13-60	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	100	90-100	35-45	15-25
	60-80	Silt loam, silty clay loam.	CL	A-6	0	0	100	100	100	90-100	30-40	11-20
441C2:												
Wakenda	0-9	Silt loam	CL, ML	A-6, A-4	0	0	100	100	100	90-100	30-40	5-15
	9-52	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	100	90-100	35-45	15-25
	52-80	Silt loam, silty clay loam.	CL	A-6	0	0	100	100	100	90-100	30-40	11-20
466A:												
Bartelso	0-12	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	30-40	10-15
	12-35	Silty clay, silty clay loam.	CL	A-6, A-7	0	0	100	100	95-100	95-100	40-50	20-30
	35-62	Silt loam, silty clay loam, silty clay.	CL	A-6, A-7	0	0	100	100	95-100	95-100	30-50	15-30
	62-80	Silt loam, silty clay loam.	CL, ML	A-6, A-7	0	0	100	100	79-100	85-100	30-50	10-30
468A:												
Lakaskia	0-13	Silt loam, silty clay loam.	CL, ML	A-4, A-6	0	0	100	100	95-100	95-100	30-40	10-20
	13-26	Silty clay loam, silty clay.	CL	A-7	0	0	100	100	95-100	95-100	40-50	20-25
	26-60	Silty clay, silty clay loam.	CL	A-7, A-6	0	0	100	100	95-100	90-100	40-50	20-30
	60-80	Silty clay loam, clay loam, loam.	CL	A-6	0	0	95-100	90-100	80-100	65-100	30-50	15-25

Table 18.–Engineering Index Properties–continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
477B:												
Winfield--------	0-9	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	25-40	10-20
	9-13	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-45	15-25
	13-62	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	62-80	Silt loam------	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
477B2, 477C2:												
Winfield--------	0-7	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	25-40	10-20
	7-56	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	56-80	Silt loam------	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
477C3:												
Winfield--------	0-5	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-45	20-25
	5-48	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	48-80	Silt loam------	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
491B2:												
Ruma------------	0-8	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	93-100	35-45	15-20
	8-56	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	0	100	100	95-100	93-100	30-45	15-24
	56-80	Silt loam------	CL	A-4, A-6	0	0	100	98-100	90-100	85-93	25-35	9-15
491C3, 491D3:												
Ruma------------	0-5	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	93-100	35-45	15-20
	5-48	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	0	100	100	95-100	93-100	30-45	15-24
	48-80	Silt loam------	CL	A-4, A-6	0	0	100	98-100	90-100	85-93	25-35	9-15
515C2:												
Bunkum----------	0-8	Silt loam------	CL	A-4, A-6, A-7-6	0	0	100	100	98-100	95-100	30-45	9-20
	8-40	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	0	100	100	98-100	95-100	35-45	15-20
	40-58	Silt loam------	CL	A-4, A-6	0	0	100	100	98-100	95-100	25-35	9-15
	58-80	Silt loam------	CL	A-4, A-6	0	0	99-100	95-100	90-100	85-100	25-35	9-15
515C3, 515D3:												
Bunkum----------	0-8	Silty clay loam	CL	A-4, A-6, A-7-6	0	0	100	100	98-100	95-100	30-45	9-20
	8-40	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	0	100	100	98-100	95-100	35-45	15-20
	40-58	Silt loam------	CL	A-4, A-6	0	0	100	100	98-100	95-100	25-35	9-15
	58-80	Silt loam------	CL	A-4, A-6	0	0	99-100	95-100	90-100	85-100	25-35	9-15
517A, 517B:												
Marine----------	0-9	Silt loam, silt	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	95-100	20-30	10-15
	9-17	Silt loam, silt	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	95-100	20-30	5-15
	17-34	Silty clay loam, silty clay.	CH	A-7	0	0	100	100	95-100	95-100	50-60	30-40
	34-62	Silty clay loam, silt loam.	CL, ML	A-6, A-7	0	0	100	100	95-100	85-100	30-50	15-30
	62-80	Silt loam, silty clay loam, loam.	CL, ML	A-4, A-6, A-7	0	0-1	98-100	95-100	85-100	60-95	30-50	10-30

Table 18.–Engineering Index Properties–continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
582B: Homen	0-9	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	95-100	28-35	9-15
	9-15	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	98-100	95-100	25-35	5-15
	15-58	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	0	100	100	98-100	95-100	35-45	15-20
	58-80	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	85-100	25-35	5-15
582B2, 582C2: Homen	0-7	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	95-100	28-35	9-15
	7-50	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	0	100	100	98-100	95-100	35-45	15-20
	50-80	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	85-100	25-35	5-15
585F2: Negley	0-7	Loam	ML, CL-ML, CL	A-4, A-6	0	0	85-100	75-100	70-90	55-85	24-40	3-15
	7-50	Loam, gravelly clay loam, gravelly sandy loam.	SM, ML	A-4, A-2, A-6, A-7	0-2	0-5	70-95	50-90	35-80	20-60	25-45	3-17
	50-80	Gravelly sandy clay loam, sandy clay loam, sandy clay.	SC-SM, SC	A-2, A-4, A-7, A-6	0-2	0-5	70-95	50-90	40-80	25-50	20-50	5-24
801B, 801D: Orthents, silty	0-60	Silt loam	CL-ML, CL	A-4, A-6, A-7	0	0	100	100	90-100	80-95	25-45	5-25
802B, 802D: Orthents, loamy	0-6	Loam	CL	A-6	0	0-5	95-100	90-100	85-95	60-90	20-40	10-20
	6-60	Loam, silt loam, clay loam.	CL	A-6	0	0-5	95-100	90-100	85-95	60-90	20-40	10-20
821G: Morristown	0-6	Very stony silty clay loam.	CL, GC, SC	A-7, A-6	0	10-30	70-95	50-80	50-75	40-70	35-50	12-24
	6-60	Very gravelly silty clay loam, very cobbly sandy clay loam.	GC, CL, CL-ML, GM-GC	A-7, A-6, A-4, A-2	0	10-25	35-75	25-65	20-65	15-60	25-50	4-24
824B: Swanwick	0-8	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	85-100	35-50	10-25
	8-23	Silty clay loam, silt loam, loam.	CL-ML, ML, CL	A-4, A-6, A-7	0	0	95-100	90-100	90-100	85-95	25-50	5-20
	23-63	Silty clay loam, clay loam.	ML, CL	A-6, A-7	0	0	95-100	90-100	85-100	80-95	35-50	10-25
	63-80	Silty clay loam, clay loam, gravelly loam.	ML, CL-ML, CL	A-4, A-6	0-2	0-5	90-100	90-100	85-95	70-80	20-40	2-20
825B: Lenzburg, acid substratum	0-5	Silty clay loam	CL	A-6	0	2-10	80-95	75-90	65-90	55-85	30-40	15-20
	5-32	Silty clay loam, silt loam, gravelly loam.	CL	A-6	0	5-15	75-95	70-90	65-85	60-85	30-40	10-20
	32-60	Fragmental material.	GW-GM, SW-SM, GP-GM	A-1	0	5-25	30-70	10-50	5-15	5-10	---	NP

Table 18.–Engineering Index Properties–continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
826D:												
Orthents, acid substratum-----	0-29	Silt loam------	CL-ML, CL	A-4, A-6, A-7	0	0	100	100	90-100	80-95	25-45	5-25
	29-60	Fragmental material.	GW-GM, GP-GM, SP-SM	A-1	0-5	5-25	30-70	10-50	5-15	5-10	---	NP
871B, 871D, 871G:												
Lenzburg--------	0-3	Gravelly silty clay loam.	CL	A-6	0-3	3-15	80-95	75-90	65-90	50-85	30-40	15-20
	3-26	Silt loam, silty clay loam, loam.	CL	A-6	0-1	0-10	80-95	75-90	70-90	55-85	30-40	10-20
	26-60	Gravelly loam, gravelly silty clay loam, gravelly clay loam.	CL	A-6	0-5	3-25	70-95	60-90	55-90	50-90	30-40	10-20
878C3:												
Coulterville----	0-5	Silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-20
	5-20	Silty clay loam, silt loam.	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-20
	20-48	Silt loam, silty clay loam.	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	30-40	10-20
	48-80	Silt loam, silty clay loam, loam.	CL-ML, CL, ML	A-4, A-6	0	0	100	100	90-100	80-95	20-40	5-20
Grantfork-------	0-5	Silty clay loam	CL	A-6	0	0	100	95-100	85-95	80-90	30-40	15-20
	5-37	Silty clay loam, clay loam, loam.	CL, ML	A-6, A-7	0	0	100	90-100	80-90	70-80	30-40	10-20
	37-80	Clay loam, loam, clay.	CL, ML, MH, CH	A-6, A-7	0	0-5	95-100	85-95	70-80	55-75	30-60	10-30
880B2:												
Coulterville----	0-7	Silt loam------	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	20-40	5-15
	7-23	Silty clay loam, silt loam.	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-20
	23-56	Silt loam, silty clay loam.	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	30-40	10-20
	56-80	Silt loam, silty clay loam, loam.	CL-ML, CL, ML	A-4, A-6	0	0	100	100	90-100	80-95	20-40	5-20
Darmstadt-------	0-7	Silt loam------	CL, CL-ML	A-6, A-4	0	0	95-100	95-100	95-100	75-100	20-30	5-15
	7-21	Silty clay loam, silty clay.	CL	A-6	0	0	100	95-100	95-100	90-100	30-40	15-20
	21-39	Silty clay loam, silt loam.	CL	A-6	0	0	100	95-100	95-100	90-100	30-40	10-20
	39-80	Silt loam, silty clay loam, loam.	CL, CL-ML	A-6, A-4	0	0	95-100	95-100	90-100	75-100	20-40	5-20

Table 18.—Engineering Index Properties—continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
882A:												
Oconee----------	0-8	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-25
	8-16	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-25
	16-47	Silty clay loam, silty clay.	CL	A-7	0	0	100	100	95-100	90-100	50-60	30-35
	47-58	Silt loam, silty clay loam.	CL	A-6, A-7	0	0	100	100	95-100	90-100	40-50	20-30
	58-80	Silt loam, loam	CL	A-6, A-7-6	0	0	100	100	85-100	70-100	30-40	15-25
Darmstadt-------	0-11	Silt loam------	CL, CL-ML	A-6, A-4	0	0	95-100	95-100	95-100	75-100	20-30	5-15
	11-21	Silty clay loam, silty clay.	CL	A-6	0	0	100	95-100	95-100	90-100	30-40	15-20
	21-39	Silty clay loam, silt loam.	CL	A-6	0	0	100	95-100	95-100	90-100	30-40	15-20
	39-80	Silt loam, silty clay loam, loam.	CL, CL-ML	A-6, A-4	0	0	95-100	95-100	90-100	75-100	20-40	5-20
882A(cont):												
Coulterville----	0-7	Silt loam------	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	20-40	5-15
	7-23	Silty clay loam, silt loam.	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-20
	23-56	Silt loam, silty clay loam.	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	30-40	10-20
	56-80	Silt loam, silty clay loam, loam.	CL-ML, CL, ML	A-4, A-6	0	0	100	100	90-100	80-95	20-40	5-20
882B:												
Oconee----------	0-8	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-25
	8-16	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-25
	16-47	Silty clay loam, silty clay.	CH	A-7	0	0	100	100	95-100	90-100	50-60	30-35
	47-58	Silt loam, silty clay loam.	CL	A-6, A-7	0	0	100	100	95-100	90-100	40-50	20-30
	58-80	Silt loam, loam	CL	A-6, A-7-6	0	0	100	100	85-100	70-100	30-40	15-25
Coulterville----	0-7	Silt loam------	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	20-40	5-15
	7-23	Silty clay loam, silt loam.	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-20
	23-56	Silt loam, silty clay loam.	CL, ML	A-4, A-6, A-7	0	0	100	100	95-100	90-100	30-40	10-20
	56-80	Silt loam, silty clay loam, loam.	CL-ML, CL	A-4, A-6, A-7	0	0	100	100	90-100	80-95	20-40	5-20
Darmstadt-------	0-11	Silt loam------	CL, CL-ML	A-6, A-4	0	0	95-100	95-100	95-100	75-100	20-30	5-15
	11-21	Silty clay loam, silty clay.	CL	A-6	0	0	100	95-100	95-100	90-100	30-40	15-20
	21-39	Silty clay loam, silt loam.	CL	A-6	0	0	100	95-100	95-100	90-100	30-40	15-20
	39-80	Silt loam, silty clay loam, loam.	CL, CL-ML	A-6, A-4	0	0	95-100	95-100	90-100	75-100	20-40	5-20

Table 18.—Engineering Index Properties—continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
884C3:												
Bunkum	0-8	Silty clay loam	CL	A-4, A-6, A-7-6	0	0	100	100	98-100	95-100	30-45	9-20
	8-40	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	0	100	100	98-100	95-100	35-45	15-20
	40-58	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	95-100	25-35	9-15
	58-80	Silt loam	CL	A-4, A-6	0	0	99-100	95-100	90-100	85-100	25-35	9-15
Coulterville	0-5	Silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-20
	5-20	Silty clay loam, silt loam.	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-20
	20-48	Silt loam, silty clay loam.	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	30-40	10-20
	48-80	Silt loam, silty clay loam, loam.	CL-ML, CL, ML	A-4, A-6	0	0	100	100	90-100	80-95	20-40	5-20
885A:												
Virden	0-15	Silt loam	CL	A-7, A-6	0	0	100	100	95-100	95-100	30-45	10-20
	15-74	Silty clay, silty clay loam.	CH, CL	A-7-6	0	0	100	100	95-100	95-100	40-60	20-40
	74-86	Silty clay loam, silt loam.	CL	A-7, A-6	0	0	100	100	95-100	90-100	30-50	10-25
Fosterburg	0-13	Silt loam	CL	A-6, A-7-6	0	0	100	100	98-100	95-100	35-45	15-25
	13-41	Silty clay loam, silty clay.	CH	A-7-6	0	0	100	100	98-100	95-100	50-60	30-35
	41-71	Silty clay loam, silt loam.	CL, CH	A-7-6	0	0	100	100	98-100	95-100	40-55	20-35
	71-80	Silt loam	CL	A-6, A-7-6	0	0	100	100	98-100	95-100	35-45	15-25
886F3:												
Ruma	0-5	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	93-100	35-45	15-20
	5-48	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	0	100	100	95-100	93-100	30-45	15-24
	48-80	Silt loam	CL	A-4, A-6	0	0	100	98-100	90-100	85-93	25-35	9-15
Ursa	0-3	Silty clay loam	CL	A-7, A-6	0	0	100	90-100	90-100	80-95	30-50	15-30
	3-68	Clay, clay loam, silty clay.	CH, CL	A-7	0	0-5	95-100	85-98	70-90	55-90	40-60	20-35
	68-80	Clay loam, loam, clay.	CL, CH	A-6, A-7	0-1	0-5	95-100	85-98	80-90	60-85	35-55	20-35
894A:												
Herrick	0-17	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	30-40	5-15
	17-43	Silty clay loam, silty clay.	CH, CL	A-7-6	0	0	100	100	95-100	90-100	45-60	25-40
	43-64	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	35-50	20-35
	64-80	Silt loam, loam, clay loam.	CL	A-6	0	0	100	100	90-100	80-100	30-40	10-20

Table 18.–Engineering Index Properties–continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
Biddle----------	0-16	Silt loam------	CL	A-6, A-7-6	0	0	100	100	98-100	95-100	35-45	15-25
	16-36	Silty clay loam, silty clay.	CL, CH	A-7-6	0	0	100	100	98-100	95-100	45-60	25-35
	36-62	Silty clay loam, silt loam.	CL, CH	A-6, A-7-6	0	0	100	100	98-100	95-100	40-55	20-30
	62-99	Silt loam------	CL	A-6, A-7-6	0	0	100	95-100	90-100	85-100	35-45	15-25
Piasa-----------	0-8	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-20
	8-12	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-20
	12-37	Silty clay, silty clay loam.	CH	A-7	0	0	100	100	95-100	95-100	50-60	30-35
	37-80	Silty clay loam, silt loam, clay loam.	CL	A-6, A-7	0	0	100	95-100	75-100	60-100	30-50	20-30
897D3:												
Bunkum----------	0-8	Silty clay loam	CL	A-4, A-6, A-7-6	0	0	100	100	98-100	95-100	30-45	9-20
	8-40	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	0	100	100	98-100	95-100	35-45	15-20
	40-58	Silt loam------	CL	A-4, A-6	0	0	100	100	98-100	95-100	25-35	9-15
	58-80	Silt loam------	CL	A-4, A-6	0	0	99-100	95-100	90-100	85-100	25-35	9-15
Atlas-----------	0-9	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	75-100	40-60	25-40
	9-31	Silty clay loam, clay, clay loam.	CH	A-7	0	0	100	95-100	95-100	75-95	50-70	30-45
	31-51	Silty clay loam, clay, clay loam.	CH	A-7	0	0	100	95-100	95-100	75-95	50-70	30-45
	51-80	Clay loam, clay, loam.	CH, CL	A-6, A-7	0	0	95-100	90-98	90-98	65-95	35-55	20-30
906C3:												
Redbud----------	0-5	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	93-100	35-45	17-24
	5-10	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	93-100	25-40	5-20
	10-40	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	0	100	100	95-100	93-100	30-45	15-24
	40-80	Silty clay loam, silty clay, silt loam.	CL, CH	A-6, A-7-6	0	0	100	100	90-100	85-100	35-60	15-35
Hurst-----------	0-5	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	10-20
	5-50	Silty clay loam, silty clay, clay.	CL, CH	A-7	0	0	100	100	95-100	90-100	40-60	20-35
	50-80	Stratified silty clay loam to silty clay.	CL, CH	A-6, A-7	0	0	100	100	90-100	85-100	35-55	15-30

Table 18.—Engineering Index Properties—continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
907D3:												
Redbud----------	0-5	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	93-100	35-45	17-24
	5-10	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	93-100	25-40	5-20
	10-40	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	0	100	100	95-100	93-100	30-45	15-24
	40-80	Silty clay loam, silty clay, silt loam.	CL, CH	A-6, A-7-6	0	0	100	100	90-100	85-100	35-60	15-35
Colp------------	0-5	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	40-50	20-30
	5-70	Silty clay loam, silty clay.	MH, CH	A-7	0	0	100	100	95-100	90-100	50-70	30-40
	70-80	Stratified silty clay loam to silty clay.	MH, CH	A-6, A-7	0	0	100	100	95-100	85-100	50-60	25-35
962F2, 962G:												
Sylvan----------	0-5	Silt loam------	CL-ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	5-25	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	100	95-100	35-50	20-30
	25-80	Silt loam, silt	CL, CL-ML	A-6, A-4	0	0	100	100	95-100	95-100	20-40	5-20
Bold------------	0-12	Silt loam------	ML, CL, CL-ML	A-4, A-6	0	0	100	100	100	95-100	20-35	3-15
	12-60	Silt loam------	ML, CL, CL-ML	A-4, A-6	0	0	100	100	100	95-100	20-35	3-15
993A:												
Cowden----------	0-8	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-25
	8-19	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-25
	19-50	Silty clay loam, silty clay.	CL	A-7-6	0	0	100	100	95-100	95-100	50-60	30-35
	50-80	Silt loam, silty clay loam, loam.	CL, ML	A-6, A-7-6	0	0	100	95-100	85-100	70-100	30-50	15-30
Piasa-----------	0-8	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-20
	8-12	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-20
	12-37	Silty clay, silty clay loam.	CH	A-7	0	0	100	100	95-100	95-100	50-60	30-35
	37-80	Silty clay loam, silt loam, clay loam.	CL	A-6, A-7	0	0	100	95-100	75-100	60-100	30-50	20-30
1071A:												
Darwin, undrained------	0-20	Silty clay-----	CH, CL	A-7	0	0	100	100	100	90-100	45-85	25-55
	20-64	Silty clay, clay.	CH, CL	A-7	0	0	100	100	100	85-100	45-85	25-55
	64-80	Silty clay loam, silty clay.	CL, CH	A-7, A-6	0	0	100	100	95-100	90-100	35-70	20-45

Table 18.—Engineering Index Properties—continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
1248A: McFain, undrained------	0-13	Silty clay-----	CH, CL	A-7	0	0	100	100	95-100	90-100	40-55	20-35
	13-20	Silty clay-----	CH, CL	A-7	0	0	100	100	95-100	90-100	40-55	20-35
	20-52	Silt loam, loam, sandy loam.	CL-ML, CL, SC-SM, SC	A-2, A-4, A-6	0	0	100	100	60-95	20-85	20-35	4-15
	52-80	Stratified fine sandy loam to silty clay loam.	CL, SC	A-6	0	0	100	90-100	50-90	35-85	20-40	10-25
1288A: Petrolia, undrained------	0-8	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	90-100	80-100	35-45	15-22
	8-54	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	90-100	85-100	35-45	15-22
	54-80	Silty clay loam, silt loam.	CL	A-4, A-6, A-7	0	0	100	95-100	80-100	60-100	30-45	11-22
2071L: Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Darwin----------	0-16	Silty clay-----	CH, CL	A-7	0	0	100	100	100	90-100	45-85	25-55
	16-62	Silty clay, clay.	CH, CL	A-7	0	0	100	100	100	85-100	45-85	25-55
	62-80	Silty clay loam, silty clay.	CL, CH	A-7, A-6	0	0	100	100	95-100	90-100	35-70	20-45
2079D, 2079E: Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Menfro----------	0-9	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	9-52	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	52-80	Silt loam------	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
2183A: Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Shaffton--------	0-10	Clay loam------	CL	A-6	0	0	100	100	85-95	60-80	30-40	11-20
	10-33	loam.	CL, CL-ML	A-4, A-6	0	0	100	100	85-95	55-65	25-35	5-15
	33-43	Loamy sand, sandy loam.	SM, SC-SM, SP-SM	A-2	0	0	100	100	50-75	10-30	0-15	NP-5
	43-60	Silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	80-95	35-45	15-25
2384B: Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Edwardsville----	0-15	Silt loam------	CL, ML	A-6	0	0	100	100	98-100	95-100	28-40	9-20
	15-57	Silt loam, silty clay loam.	CL, ML	A-6, A-7-6	0	0	100	100	98-100	95-100	30-45	9-20
	57-80	Silt loam------	CL, ML	A-6	0	0	100	100	98-100	95-100	28-35	9-15
2477B: Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Winfield--------	0-9	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	25-40	10-20
	9-13	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-45	15-25
	13-62	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	62-80	Silt loam------	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15

Table 18.–Engineering Index Properties–continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
3038B:												
Rocher----------	0-5	Loam----------	CL-ML, CL	A-4	0	0	100	100	95-100	50-85	20-30	5-10
	5-53	Very fine sand, loamy very fine sand, silt loam.	ML, CL, CL-ML	A-4	0	0	100	100	95-100	50-85	10-30	NP-10
	53-62	Fine sand, loamy fine sand, loam.	ML, CL, SM, SC	A-4, A-2	0	0	100	100	90-100	30-90	0-20	NP-10
3070L:												
Beaucoup--------	0-16	Silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	85-100	30-45	15-25
	16-64	Silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	85-100	30-45	15-30
	64-80	Stratified very fine sandy loam to silty clay loam.	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	60-95	20-40	5-20
3076A:												
Otter-----------	0-37	Silt loam------	CL	A-6, A-7, A-4	0	0	100	95-100	90-100	80-100	25-45	7-20
	37-55	Silt loam, loam, silty clay loam.	CL	A-6, A-7	0	0	100	95-100	90-100	80-100	30-45	10-20
	55-80	Silt loam, sandy loam, silty clay loam.	CL-ML, CL, SC-SM, SC	A-4, A-6, A-7	0	0	90-100	80-100	55-95	45-85	25-45	5-20
3083L:												
Wabash----------	0-10	Silty clay-----	CH	A-7	0	0	100	100	95-100	90-100	50-75	30-50
	10-80	Silty clay-----	CH	A-7	0	0	100	100	95-100	95-100	50-75	30-55
3180A:												
Dupo------------	0-9	Silt loam------	ML, CL, CL-ML	A-4, A-6	0	0	100	100	100	95-100	20-30	5-10
	9-25	Silt loam------	CL, CL-ML	A-4, A-6	0	0	100	100	100	95-100	20-30	5-10
	25-80	Silty clay, clay, silty clay loam.	CL, CH	A-7, A-6	0	0	100	100	100	98-100	50-70	30-45
3288L:												
Petrolia--------	0-8	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	90-100	80-100	35-45	15-22
	8-55	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	90-100	85-100	35-45	15-22
	55-80	Silty clay loam, silt loam.	CL	A-4, A-6, A-7	0	0	100	95-100	80-100	60-100	30-45	11-22
3333A:												
Wakeland--------	0-7	Silt loam------	ML, CL-ML, CL	A-4	0	0	100	100	90-100	80-100	16-28	3-9
	7-29	Silt loam------	ML, CL-ML, CL	A-4	0	0	100	100	90-100	80-100	16-28	3-9
	29-80	Silt loam, loam	ML, CL-ML, CL	A-4	0	0	100	100	85-100	60-100	16-28	3-9
3334L:												
Birds-----------	0-8	Silt loam------	CL	A-4, A-6	0	0	100	95-100	90-100	80-100	24-34	8-15
	8-80	Silt loam------	CL	A-4, A-6	0	0	100	95-100	90-100	80-100	24-34	8-15
3336A:												
Wilbur----------	0-7	Silt loam------	CL-ML, CL, ML	A-4	0	0	100	100	95-100	70-100	20-30	3-10
	7-32	Silt loam------	CL-ML, CL, ML	A-4	0	0	100	100	95-100	80-100	20-30	3-10
	32-60	Silt loam, loam	CL-ML, CL, ML	A-4, A-6	0	0	100	100	80-100	60-100	20-35	3-15
3391A:												
Blake-----------	0-6	Silty clay loam	CL	A-7, A-6	0	0	100	100	90-100	85-95	35-50	15-30
	6-33	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	90-100	85-95	30-50	10-30
	33-60	Silt loam, loam, very fine sandy loam.	ML, CL	A-4, A-6	0	0	100	100	80-90	75-90	30-40	5-15

Table 18.–Engineering Index Properties–continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
3394A, 3394B:												
Haynie---------	0-8	Silt loam------	CL-ML, CL	A-4, A-6	0	0	100	100	85-100	70-100	25-40	5-15
	8-60	Silt loam, very fine sandy loam.	CL-ML, CL	A-4, A-6	0	0	100	100	85-100	85-100	25-35	5-15
3415A:												
Orion----------	0-7	Silt loam------	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	80-100	25-35	4-12
	7-35	Stratified silt loam to very fine sand.	CL, CL-ML	A-4	0	0	100	100	90-100	70-80	20-30	4-10
	35-54	Silt loam, silty clay loam.	CL, CL-ML	A-6, A-4	0	0	100	100	85-100	85-100	20-40	4-18
	54-66	Stratified silt loam to sand.	CL, CL-ML	A-4	0	0	80-100	80-100	80-100	80-100	20-30	4-10
3428A:												
Coffeen--------	0-10	Silt loam------	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	5-20
	10-47	Silt loam------	ML, CL-ML, CL	A-4	0	0	100	100	90-100	80-95	20-35	3-10
	47-60	Stratified silt loam to sandy loam.	ML, SM, SC, CL	A-4, A-2	0	0	100	90-100	85-100	30-85	15-30	NP-10
3847L:												
Fluvaquents-----	0-10	Loam-----------	CL-ML, CL	A-4, A-6	0	0	95-100	90-100	75-100	55-85	18-35	4-15
	10-60	Sand, loam, sandy clay loam.	SM, SC, ML, CL	A-4, A-2-4, A-1-B	0	0	90-100	85-100	45-85	20-60	0-35	NP-20
Orthents--------	0-6	Loam-----------	CL	A-6	0	0-5	95-100	90-100	85-95	60-90	20-40	10-20
	6-60	Loam, silt loam, clay loam.	CL	A-6	0	0-5	95-100	90-100	85-95	60-90	20-40	10-20
5079C, 5079D:												
Menfro, karst---	0-5	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	5-50	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	50-80	Silt loam------	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
5079G:												
Menfro, karst---	0-9	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	9-52	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	52-80	Silt loam------	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
8026A:												
Wagner---------	0-9	Silt loam------	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	24-35	6-15
	9-17	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	20-35	3-15
	17-67	Silty clay, silty clay loam.	CH, CL	A-7	0	0	100	100	95-100	90-100	45-60	25-40
	67-80	Silty clay loam	CL, CH	A-6, A-7	0	0	100	100	95-100	90-100	35-55	15-30
8070A:												
Beaucoup--------	0-16	Silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	85-100	30-45	15-25
	16-64	Silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	85-100	30-45	15-30
	64-80	Stratified very fine sandy loam to silty clay loam.	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	60-95	20-40	5-20
8071L:												
Darwin---------	0-16	Silty clay-----	CH, CL	A-7	0	0	100	100	100	90-100	45-85	25-55
	16-62	Silty clay, clay.	CH, CL	A-7	0	0	100	100	100	85-100	45-85	25-55
	62-80	Silty clay loam, silty clay.	CL, CH	A-7, A-6	0	0	100	100	95-100	90-100	35-70	20-45

Table 18.—Engineering Index Properties—continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
8084A:												
Okaw----------	0-7	Silt loam------	CL	A-6	0	0	100	100	95-100	90-100	30-40	15-20
	7-15	Silt loam, silty clay loam.	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-50	10-25
	15-54	Silty clay, clay, silty clay loam.	CH, MH	A-7	0	0	100	100	95-100	85-100	50-80	30-50
	54-80	Silty clay loam, silty clay, clay.	CH, MH	A-7	0	0	100	100	95-100	85-100	50-70	30-45
8109A:												
Racoon---------	0-6	Silt loam------	CL	A-4, A-6	0	0	100	100	95-100	90-100	20-40	8-20
	6-30	Silt loam------	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	20-40	5-20
	30-59	Silty clay loam, silt loam.	CL, CL-ML	A-6, A-7, A-4	0	0	100	100	95-100	90-100	35-50	15-30
	59-73	Loam, silt loam, silty clay loam.	CL, ML, CL-ML	A-4, A-5, A-7	0	0	100	90-100	75-100	60-90	25-45	3-20
8122C, 8122D:												
Colp-----------	0-5	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	40-50	20-30
	5-70	Silty clay loam, silty clay.	MH, CH	A-7	0	0	100	100	95-100	90-100	50-70	30-40
	70-80	Stratified silty clay loam to silty clay.	MH, CH	A-6, A-7	0	0	100	100	95-100	85-100	50-60	25-35
8131B:												
Alvin----------	0-9	Fine sandy loam	SM, ML	A-4, A-2	0	0	100	100	80-95	30-60	0-25	NP-4
	9-47	Sandy loam, fine sandy loam.	SM, SC, ML, CL-ML	A-2, A-4, A-6	0	0	95-100	95-100	75-90	20-80	15-40	NP-15
	47-80	Sand, sandy loam.	SP-SM, SM	A-2, A-3, A-4	0	0	95-100	90-100	70-95	5-40	0-20	NP-4
8162A:												
Gorham---------	0-14	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	90-100	70-90	30-50	15-25
	14-36	Silty clay loam, silty clay.	CL, CH	A-7	0	0	100	95-100	90-100	90-95	40-55	15-20
	36-62	Clay loam, sandy clay loam, loam.	CL	A-6, A-7	0	0	100	95-100	70-80	50-80	30-40	15-20
	62-80	Fine sand, loamy fine sand, sandy loam.	SM, SP-SM, SC, SC-SM	A-2, A-4	0	0	100	95-100	55-80	10-50	0-20	NP-10
8180A:												
Dupo-----------	0-9	Silt loam------	ML, CL, CL-ML	A-4, A-6	0	0	100	100	100	95-100	20-30	5-10
	9-25	Silt loam------	CL, CL-ML	A-4, A-6	0	0	100	100	100	95-100	20-30	5-10
	25-80	Silty clay, clay, silty clay loam.	CL, CH	A-7, A-6	0	0	100	100	100	98-100	50-70	30-45
8183A:												
Shaffton-------	0-12	Clay loam------	CL	A-6	0	0	100	100	85-95	60-80	30-40	11-20
	12-24	Loam-----------	CL, CL-ML	A-4, A-6	0	0	100	100	85-95	55-65	25-35	5-15
	24-66	Loamy sand, sandy loam	SM, SC-SM, SP-SM	A-2	0	0	100	100	50-75	10-30	0-15	NP-5
	66-80	Coarse sand, fine sand, sand.	SW, SP, SW-SM, SP-SM	A-1	0	0	90-100	90-95	20-35	3-5	0-14	NP

Table 18.–Engineering Index Properties–continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
8284A:												
Tice------------	0-16	Silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	80-95	30-45	10-20
	16-72	Silty clay loam, silt loam.	CL, CH	A-7	0	0	100	100	95-100	85-95	40-55	15-30
	72-80	Stratified silty clay loam to loam.	CL-ML, CL	A-4, A-6, A-7	0	0	100	100	60-95	55-80	25-45	5-20
8304B:												
Landes----------	0-14	Very fine sandy loam.	SM, SC, SC-SM	A-4, A-2-4	0	0	100	70-100	70-95	20-50	5-25	NP-10
	14-39	Loam, very fine sandy loam, loamy fine sand.	SM, CL-ML, SC, SC-SM	A-4, A-2-4	0	0	100	85-100	70-100	15-60	0-25	NP-15
	39-80	Stratified sand to silt loam.	SM, SP-SM, SC, SC-SM	A-4, A-2-4	0	0	100	85-100	70-85	10-50	0-30	NP-15
8338A:												
Hurst-----------	0-7	Silt loam------	CL, CL-ML	A-4, A-6	0	0	100	95-100	95-100	75-100	20-35	4-15
	7-12	Silty clay loam, silt loam.	CL, CL-ML	A-6, A-4	0	0	100	100	95-100	90-100	20-35	5-15
	12-62	Silty clay loam, silty clay, clay	CL, CH	A-7	0	0	100	100	95-100	90-100	40-60	20-35
	62-80	Stratified silty clay loam to silty clay.	CL, CH	A-6, A-7	0	0	100	100	90-100	85-100	35-55	15-30
8338B:												
Hurst-----------	0-6	Silt loam------	CL, CL-ML	A-4, A-6	0	0	100	95-100	95-100	75-100	20-35	4-15
	6-10	Silty clay loam, silt loam.	CL, CL-ML	A-6, A-4	0	0	100	100	95-100	90-100	20-35	5-15
	10-56	Silty clay loam, silty clay, clay.	CL, CH	A-7	0	0	100	100	95-100	90-100	40-60	20-35
	56-80	Stratified silty clay loam to silty clay.	CL, CH	A-6, A-7	0	0	100	100	90-100	85-100	35-55	15-30
8338C:												
Hurst-----------	0-5	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	10-20
	5-50	Silty clay loam, silty clay, clay.	CL, CH	A-7	0	0	100	100	95-100	90-100	40-60	20-35
	50-80	Stratified silty clay loam to silty clay.	CL, CH	A-6, A-7	0	0	100	100	90-100	85-100	35-55	15-30
8394A:												
Haynie----------	0-8	Silt loam------	CL-ML, CL	A-4, A-6	0	0	100	100	85-100	70-100	25-40	5-15
	8-60	Silt loam, very fine sandy loam.	CL-ML, CL	A-4, A-6	0	0	100	100	85-100	85-100	25-35	5-15

Table 18.—Engineering Index Properties—continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
8432A:												
Geff-----------	0-5	Silt loam------	CL-ML, CL	A-4, A-6	0	0	95-100	95-100	95-100	95-100	20-35	4-15
	5-12	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	95-100	95-100	95-100	95-100	20-35	4-15
	12-33	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	95-100	95-100	90-100	90-100	35-45	15-25
	33-62	Silt loam, loam, sandy loam.	CL-ML, CL	A-4, A-6	0	0-2	90-100	80-100	70-100	50-90	15-30	4-15
	62-80	Sand, loamy sand.	SM, SP-SM	A-2, A-4	0	0-1	90-100	85-100	70-85	12-50	0-14	NP
8434B:												
Ridgway---------	0-8	Silt loam------	CL, ML, CL-ML	A-6, A-4	0	0	100	95-100	95-100	90-100	20-35	3-15
	8-27	Silty clay loam, silt loam.	CL	A-6	0	0	100	95-100	95-100	90-100	30-40	15-25
	27-52	Clay loam, loam, sandy loam.	CL, SC, SC-SM, ML	A-4, A-6	0	0	90-100	85-100	80-90	35-70	20-40	3-15
	52-80	Fine sandy loam, fine sandy loam.	SM, SP-SM	A-2, A-1-B, A-3	0	0	75-100	50-100	20-60	5-30	0-14	NP
8436B:												
Meadowbank------	0-17	Silt loam------	CL, ML, CL-ML	A-6, A-4	0	0	100	95-100	95-100	90-100	20-35	3-15
	17-34	Silty clay loam	CL	A-6	0	0	100	95-100	95-100	90-100	30-40	15-25
	34-53	Loam, sandy loam, clay loam.	CL, SC, SM, ML	A-4, A-6	0	0	90-100	85-100	80-90	35-70	20-40	3-15
	53-80	Sand, loamy sand, sandy loam.	SM, SP-SM	A-2, A-1-B	0	0	75-100	50-100	20-60	10-50	0-14	NP
8489A:												
Hurst, sandy substratum-----	0-10	Silt loam------	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
	10-40	Silty clay, clay, silty clay loam.	CH, CL	A-7	0	0	100	100	95-100	90-100	40-65	25-40
	40-60	Loamy sand, sand, sandy loam.	SM	A-2, A-1	0	0	100	90-100	40-80	15-35	0-20	NP-3
8524L:												
Zipp-----------	0-8	Silty clay-----	CH, CL	A-7	0	0	100	100	95-100	90-95	40-55	15-30
	8-51	Silty clay-----	CL, CH	A-7	0	0	100	100	95-100	90-95	45-60	25-35
	51-80	Silty clay-----	CL, CH	A-7	0	0	100	100	90-100	75-95	45-60	25-35
8591A:												
Fults-----------	0-12	Silty clay-----	CL, CH	A-7	0	0	100	100	100	95-100	45-65	20-40
	12-32	Clay, silty clay, silty clay loam.	CL, CH	A-7	0	0	100	100	95-100	85-100	45-65	20-40
	32-42	Silty clay loam, sandy clay loam, sandy loam.	ML, SM	A-4, A-6, A-7	0	0	100	95-100	80-95	40-85	30-50	5-20
	42-80	Sandy loam, loamy sand, fine sand.	ML, SW-SM, SM, SP-SM	A-2, A-4, A-3	0	0	100	90-100	60-100	5-60	25-35	NP-10

Table 18.—Engineering Index Properties—continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
8592A:												
Nameoki----------	0-12	Silty clay-----	CH	A-7	0	0	100	100	100	90-100	50-65	25-40
	12-28	Silty clay, silty clay loam, clay.	CL, CH	A-7	0	0	100	100	95-100	85-100	45-65	20-40
	28-54	Silt loam, sandy loam, silty clay loam.	CL-ML, CL, SC-SM, SC	A-4, A-6	0	0	100	95-100	80-95	40-85	25-40	5-15
	54-80	Very fine sand, silt loam, silty clay loam.	ML, CL, SM, SC	A-2, A-4, A-6, A-3	0	0	100	90-100	60-90	5-80	20-40	NP-15
8646A:												
Fluvaquents, loamy----------	0-10	Loam-----------	CL-ML, CL	A-4, A-6	0	0	95-100	90-100	75-100	55-85	18-35	4-15
	10-60	Sand, loam, sandy clay loam.	SM, SC, ML, CL	A-4, A-2-4, A-1-B	0	0	90-100	85-100	45-85	20-60	0-35	NP-20
8812F:												
Typic Hapludalfs	0-8	Silt loam------	CL	A-6	0	0	95-100	95-100	90-100	85-100	30-40	15-25
	8-60	Variable-------	CL, SM, SC, ML	A-6, A-4, A-2-4	0	0-3	90-100	80-100	60-95	30-85	20-50	NP-30

Table 19.—Physical Properties of the Soils

(The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data was not available or was not estimated)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
5C2:												
Blair----------	0-7	20-27	1.35-1.55	0.60-2.00	0.15-0.24	Low------	1.0-3.0	0.43	0.43	5	6	48
	7-22	25-35	1.45-1.60	0.20-0.60	0.16-0.21	Moderate-	0.0-0.5	0.37	0.37			
	22-50	18-35	1.45-1.60	0.20-0.60	0.16-0.21	Moderate-	0.0-0.3	0.37	0.37			
	50-80	20-35	1.35-1.60	0.20-0.60	0.19-0.22	Low------	0.0-0.1	0.37	0.37			
5C3, 5D3:												
Blair----------	0-5	20-27	1.35-1.55	0.60-2.00	0.15-0.24	Low------	0.5-2.0	0.37	0.37	5	6	48
	5-20	25-35	1.45-1.60	0.20-0.60	0.16-0.21	Moderate-	0.0-0.5	0.37	0.37			
	20-47	18-35	1.45-1.60	0.20-0.60	0.16-0.21	Moderate-	0.0-0.3	0.37	0.37			
	47-80	20-35	1.35-1.60	0.20-0.60	0.19-0.22	Low------	0.0-0.1	0.37	0.37			
8F2:												
Hickory--------	0-12	19-25	1.30-1.50	0.60-2.00	0.20-0.22	Low------	1.0-2.0	0.43	0.43	5	6	48
	12-46	24-35	1.45-1.65	0.60-2.00	0.15-0.19	Moderate-	0.0-0.5	0.32	0.37			
	46-58	15-32	1.50-1.70	0.60-2.00	0.11-0.19	Low------	0.0-0.5	0.32	0.37			
	58-80	15-30	1.50-1.75	0.60-2.00	0.10-0.15	Low------	0.0-0.5	0.32	0.37			
31A:												
Pierron--------	0-8	12-25	1.25-1.45	0.60-2.00	0.18-0.22	Low------	1.0-2.0	0.43	0.43	5	5	56
	8-20	10-22	1.30-1.50	0.06-0.20	0.15-0.20	Low------	0.0-0.5	0.55	0.55			
	20-36	35-45	1.35-1.60	0.01-0.06	0.10-0.18	High-----	0.0-0.5	0.37	0.37			
	36-66	27-42	1.35-1.60	0.01-0.06	0.12-0.18	High-----	0.0-0.5	0.37	0.37			
	66-80	18-35	1.30-1.55	0.06-0.20	0.14-0.20	Moderate-	0.0-0.5	0.37	0.37			
37A, 37B:												
Worthen--------	0-29	12-22	1.20-1.40	0.60-2.00	0.22-0.24	Low------	2.0-4.0	0.32	0.32	5	6	48
	29-64	15-26	1.20-1.40	0.60-2.00	0.20-0.22	Low------	0.5-2.0	0.49	0.49			
	64-80	15-24	1.20-1.40	0.60-2.00	0.20-0.22	Low------	0.0-1.0	0.49	0.49			
46A:												
Herrick--------	0-17	20-27	1.15-1.30	0.60-2.00	0.22-0.24	Moderate-	3.0-4.0	0.28	0.28	5	6	48
	17-43	35-42	1.20-1.40	0.20-0.60	0.12-0.17	High-----	0.2-1.0	0.37	0.37			
	43-64	25-40	1.20-1.40	0.20-0.60	0.16-0.20	Moderate-	0.0-0.4	0.37	0.37			
	64-80	20-30	1.30-1.50	0.20-0.60	0.16-0.21	Moderate-	0.0-0.2	0.49	0.49			
50A:												
Virden---------	0-15	20-27	1.20-1.40	0.60-2.00	0.21-0.24	Moderate-	3.0-6.0	0.24	0.24	5	6	48
	15-74	35-42	1.20-1.45	0.20-0.60	0.11-0.20	High-----	0.0-2.0	0.37	0.37			
	74-86	25-33	1.25-1.55	0.20-0.60	0.18-0.22	Moderate-	0.0-0.5	0.49	0.49			
75B:												
Drury----------	0-7	10-20	1.20-1.40	0.60-2.00	0.20-0.24	Low------	1.0-2.0	0.49	0.49	5	5	56
	7-43	18-25	1.25-1.45	0.60-2.00	0.20-0.22	Low------	0.0-0.2	0.49	0.49			
	43-80	15-20	1.30-1.50	0.60-2.00	0.12-0.21	Low------	0.0-0.2	0.49	0.49			
79B:												
Menfro---------	0-10	18-27	1.25-1.40	0.60-2.00	0.22-0.24	Low------	0.5-2.0	0.43	0.43	5	6	48
	10-62	27-33	1.35-1.50	0.60-2.00	0.18-0.20	Moderate-	0.0-0.5	0.37	0.37			
	62-80	8-20	1.30-1.45	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.55	0.55			
79C2, 79D2:												
Menfro---------	0-7	18-27	1.25-1.40	0.60-2.00	0.22-0.24	Low------	0.5-2.0	0.43	0.43	5	6	48
	7-56	27-33	1.35-1.50	0.60-2.00	0.18-0.20	Moderate-	0.0-0.5	0.37	0.37			
	56-80	8-20	1.30-1.45	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.55	0.55			
79C3, 79D3:												
Menfro---------	0-5	27-30	1.30-1.45	0.60-2.00	0.18-0.20	Moderate-	0.5-1.0	0.37	0.37	5	7	38
	5-50	27-33	1.35-1.50	0.60-2.00	0.18-0.20	Moderate-	0.0-0.5	0.37	0.37			
	50-80	8-20	1.30-1.45	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.55	0.55			
79F, 79G:												
Menfro---------	0-9	18-27	1.25-1.40	0.60-2.00	0.22-0.24	Low------	0.5-2.0	0.43	0.43	5	6	48
	9-52	27-33	1.35-1.50	0.60-2.00	0.18-0.20	Moderate-	0.0-0.5	0.37	0.37			
	52-80	8-20	1.30-1.45	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.55	0.55			

Table 19.—Physical Properties of the Soils—continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
79F3:												
Menfro----------	0-5	27-30	1.30-1.45	0.60-2.00	0.18-0.20	Moderate-	0.5-1.0	0.37	0.37	5	7	38
	5-50	27-33	1.35-1.50	0.60-2.00	0.18-0.20	Moderate-	0.0-0.5	0.37	0.37			
	50-80	8-20	1.30-1.45	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.55	0.55			
81A:												
Littleton-------	0-10	18-27	1.20-1.45	0.60-2.00	0.20-0.24	Low------	3.0-4.0	0.32	0.32	5	6	48
	10-33	22-27	1.20-1.40	0.60-2.00	0.22-0.24	Low------	2.0-4.0	0.32	0.32			
	33-80	18-27	1.20-1.40	0.60-2.00	0.20-0.22	Low------	0.5-2.0	0.49	0.49			
90A:												
Bethalto--------	0-8	18-27	1.20-1.30	0.60-2.00	0.22-0.24	Low------	2.0-4.0	0.37	0.37	5	6	48
	8-15	15-25	1.30-1.40	0.60-2.00	0.20-0.22	Low------	0.5-1.0	0.43	0.43			
	15-70	20-35	1.30-1.45	0.60-2.00	0.18-0.22	Moderate-	0.5-1.0	0.37	0.37			
	70-80	18-27	1.30-1.50	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.49	0.49			
109A:												
Racoon----------	0-6	18-27	1.30-1.50	0.20-0.60	0.22-0.24	Low------	1.0-2.0	0.43	0.43	5	6	48
	6-26	18-27	1.35-1.55	0.20-0.60	0.20-0.22	Low------	0.0-0.5	0.49	0.49			
	26-39	27-38	1.35-1.60	0.06-0.20	0.15-0.20	Moderate-	0.5-1.0	0.37	0.37			
	39-47	27-35	1.35-1.60	0.06-0.20	0.18-0.20	Moderate-	0.5-1.0	0.37	0.37			
	47-60	18-35	1.40-1.65	0.20-0.60	0.15-0.20	Moderate-	0.5-1.0	0.49	0.49			
112A:												
Cowden----------	0-8	17-27	1.30-1.50	0.60-2.00	0.22-0.24	Low------	2.0-3.0	0.37	0.37	5	6	48
	8-19	17-27	1.25-1.45	0.06-0.20	0.18-0.20	Low------	0.0-0.5	0.49	0.49			
	19-50	35-42	1.35-1.60	0.06-0.20	0.12-0.20	High-----	0.0-1.0	0.37	0.37			
	50-80	20-30	1.50-1.70	0.20-0.60	0.17-0.22	Moderate-	0.0-0.5	0.37	0.37			
113A, 113B:												
Oconee----------	0-8	20-27	1.20-1.30	0.60-2.00	0.22-0.24	Moderate-	2.0-3.0	0.37	0.37	5	6	48
	8-16	18-27	1.30-1.45	0.06-0.20	0.20-0.22	Moderate-	0.0-0.5	0.49	0.49			
	16-47	35-42	1.30-1.50	0.06-0.20	0.11-0.17	High-----	0.0-1.0	0.37	0.37			
	47-58	20-35	1.40-1.60	0.06-0.20	0.16-0.21	Moderate-	0.0-1.0	0.37	0.37			
	58-80	17-27	1.40-1.60	0.06-0.20	0.20-0.22	Moderate-	0.0-0.5	0.49	0.49			
267A, 267B:												
Caseyville------	0-7	18-27	1.20-1.30	0.60-2.00	0.22-0.24	Low------	1.0-2.0	0.43	0.43	5	6	48
	7-16	15-30	1.30-1.40	0.60-2.00	0.20-0.22	Moderate-	0.5-1.0	0.49	0.49			
	16-62	20-35	1.30-1.45	0.60-2.00	0.18-0.22	Moderate-	0.5-1.0	0.37	0.37			
	62-80	18-27	1.30-1.50	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.49	0.49			
283B:												
Downsouth-------	0-13	18-27	1.20-1.30	0.60-2.00	0.22-0.24	Low------	2.0-3.0	0.37	0.37	5	6	48
	13-65	24-35	1.25-1.40	0.60-2.00	0.18-0.22	Moderate-	0.5-1.0	0.37	0.37			
	65-80	18-27	1.30-1.45	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.49	0.49			
283C2:												
Downsouth-------	0-9	18-27	1.20-1.30	0.60-2.00	0.22-0.24	Low------	2.0-3.0	0.37	0.37	5	6	48
	9-58	24-35	1.25-1.40	0.60-2.00	0.18-0.22	Moderate-	0.5-1.0	0.37	0.37			
	58-80	18-27	1.30-1.45	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.49	0.49			
384A, 384B:												
Edwardsville----	0-15	20-30	1.20-1.35	0.60-2.00	0.22-0.24	Moderate-	4.0-6.0	0.28	0.28	5	6	48
	15-57	20-35	1.30-1.50	0.60-2.00	0.18-0.22	Moderate-	0.5-2.0	0.37	0.37			
	57-80	18-25	1.30-1.55	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.49	0.49			
385A:												
Mascoutah-------	0-21	27-35	1.20-1.40	0.60-2.00	0.21-0.23	Moderate-	4.0-6.0	0.24	0.24	5	7	38
	21-58	27-35	1.30-1.50	0.60-2.00	0.18-0.20	Moderate-	1.0-2.0	0.37	0.37			
	58-66	20-32	1.30-1.50	0.60-2.00	0.18-0.22	Moderate-	0.5-1.0	0.37	0.37			
	66-80	18-30	1.30-1.55	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.49	0.49			
423A, 423B:												
Millstadt-------	0-9	12-25	1.25-1.45	0.60-2.00	0.20-0.24	Low------	1.0-2.0	0.43	0.43	5	5	56
	9-18	12-30	1.30-1.50	0.60-2.00	0.18-0.22	Moderate-	0.0-0.5	0.49	0.49			
	18-53	22-35	1.35-1.60	0.20-0.60	0.16-0.20	Moderate-	0.0-0.5	0.37	0.37			
	53-80	24-55	1.35-1.60	0.06-0.20	0.10-0.18	High-----	0.0-0.5	0.37	0.37			

Table 19.—Physical Properties of the Soils—continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
	In	Pct	g/cc	In/hr	In/in		Pct					
433A:												
Floraville------	0-9	12-25	1.25-1.45	0.60-2.00	0.18-0.22	Low------	1.0-2.0	0.43	0.43	5	5	56
	9-18	10-22	1.30-1.50	0.06-0.20	0.15-0.20	Low------	0.0-0.5	0.55	0.55			
	18-44	27-48	1.35-1.60	0.01-0.06	0.12-0.18	High-----	0.0-0.5	0.37	0.37			
	44-70	24-55	1.35-1.60	0.01-0.06	0.10-0.18	High-----	0.0-0.5	0.37	0.37			
	70-94	20-45	1.30-1.55	0.06-0.20	0.12-0.20	High-----	0.0-0.5	0.37	0.37			
437B:												
Redbud----------	0-9	12-25	1.25-1.45	0.60-2.00	0.22-0.24	Low------	1.0-2.0	0.43	0.43	5	5	56
	9-16	12-32	1.30-1.50	0.60-2.00	0.18-0.22	Moderate-	0.0-0.5	0.49	0.49			
	16-45	22-35	1.35-1.60	0.20-0.60	0.16-0.20	Moderate-	0.0-0.5	0.37	0.37			
	45-80	24-55	1.35-1.60	0.06-0.20	0.10-0.18	High-----	0.0-0.5	0.37	0.37			
437C2:												
Redbud----------	0-6	12-25	1.25-1.45	0.60-2.00	0.22-0.24	Low------	1.0-2.0	0.43	0.43	5	5	56
	6-12	12-32	1.30-1.50	0.60-2.00	0.18-0.22	Moderate-	0.0-0.5	0.49	0.49			
	12-40	22-35	1.35-1.60	0.20-0.60	0.16-0.20	Moderate-	0.0-0.5	0.37	0.37			
	40-80	24-55	1.35-1.60	0.06-0.20	0.10-0.18	High-----	0.0-0.5	0.37	0.37			
438B:												
Aviston---------	0-16	15-27	1.25-1.45	0.60-2.00	0.20-0.24	Low------	2.0-4.0	0.28	0.28	5	6	48
	16-67	24-35	1.35-1.55	0.60-2.00	0.18-0.22	Moderate-	0.5-1.0	0.37	0.37			
	67-80	15-30	1.35-1.60	0.60-2.00	0.18-0.22	Moderate-	0.0-0.5	0.37	0.37			
438C2:												
Aviston---------	0-10	15-27	1.25-1.45	0.60-2.00	0.20-0.24	Low------	2.0-4.0	0.28	0.28	5	6	48
	10-57	24-35	1.35-1.55	0.60-2.00	0.18-0.22	Moderate-	0.5-1.0	0.37	0.37			
	57-80	15-30	1.35-1.60	0.60-2.00	0.18-0.22	Moderate-	0.0-0.5	0.37	0.37			
441B:												
Wakenda---------	0-13	18-27	1.20-1.30	0.60-2.00	0.20-0.24	Low------	3.0-4.0	0.28	0.28	5	6	48
	13-60	25-35	1.30-1.50	0.60-2.00	0.18-0.20	Moderate-	0.5-2.0	0.37	0.37			
	60-80	20-30	1.20-1.50	0.60-2.00	0.20-0.22	Moderate-	0.0-0.5	0.49	0.49			
441C2:												
Wakenda---------	0-9	18-27	1.20-1.30	0.60-2.00	0.20-0.24	Low------	3.0-4.0	0.28	0.28	5	6	48
	9-52	25-35	1.30-1.50	0.60-2.00	0.18-0.20	Moderate-	0.5-2.0	0.37	0.37			
	52-80	20-30	1.20-1.50	0.60-2.00	0.20-0.22	Moderate-	0.0-0.5	0.49	0.49			
466A:												
Bartelso--------	0-12	18-28	1.20-1.30	0.60-2.00	0.22-0.24	Low------	2.0-5.0	0.28	0.28	3	6	48
	12-35	36-42	1.25-1.40	0.06-0.20	0.12-0.17	High-----	0.5-1.0	0.32	0.32			
	35-62	22-42	1.35-1.55	0.06-0.20	0.15-0.18	Moderate-	0.2-0.5	0.37	0.37			
	62-80	18-42	1.30-1.50	0.06-0.20	0.12-0.20	Moderate-	0.0-0.5	0.43	0.43			
468A:												
Lakaskia--------	0-13	20-30	1.15-1.35	0.60-2.00	0.18-0.24	Low------	2.0-3.0	0.24	0.24	5	6	48
	13-26	30-42	1.30-1.45	0.06-0.20	0.15-0.18	High-----	0.5-1.0	0.37	0.37			
	26-60	35-45	1.35-1.50	0.06-0.20	0.14-0.18	High-----	0.2-0.5	0.32	0.32			
	60-80	25-42	1.40-1.55	0.06-0.20	0.12-0.16	Moderate-	0.2-0.5	0.43	0.43			
477B:												
Winfield--------	0-9	20-27	1.30-1.50	0.60-2.00	0.22-0.24	Low------	0.5-2.0	0.43	0.43	5	6	48
	9-13	22-30	1.30-1.50	0.60-2.00	0.18-0.22	Moderate-	0.5-1.0	0.49	0.49			
	13-62	24-35	1.30-1.50	0.60-2.00	0.18-0.20	Moderate-	0.0-0.5	0.37	0.37			
	62-80	20-27	1.30-1.50	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.49	0.49			
477B2, 477C2:												
Winfield--------	0-7	20-27	1.30-1.50	0.60-2.00	0.22-0.24	Low------	0.5-2.0	0.43	0.43	5	6	48
	7-56	24-35	1.30-1.50	0.60-2.00	0.18-0.20	Moderate-	0.0-0.5	0.37	0.37			
	56-80	20-27	1.30-1.50	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.49	0.49			
477C3:												
Winfield--------	0-5	27-30	1.30-1.50	0.60-2.00	0.18-0.20	Moderate-	0.5-2.0	0.37	0.37	5	7	38
	5-48	24-35	1.30-1.50	0.60-2.00	0.18-0.20	Moderate-	0.0-0.5	0.37	0.37			
	48-80	20-27	1.30-1.50	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.49	0.49			

Table 19.–Physical Properties of the Soils–continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors K	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
491B2:												
Ruma------------	0-8	27-35	1.20-1.30	0.60-2.00	0.18-0.20	Moderate-	0.5-1.0	0.43	0.43	5	6	48
	8-56	22-35	1.25-1.40	0.60-2.00	0.18-0.22	Moderate-	0.0-0.5	0.37	0.37			
	56-80	15-27	1.30-1.45	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.37	0.37			
491C3, 491D3:												
Ruma------------	0-5	27-35	1.20-1.30	0.60-2.00	0.18-0.20	Moderate-	0.5-1.0	0.37	0.37	5	6	48
	5-48	22-35	1.25-1.40	0.60-2.00	0.18-0.22	Moderate-	0.0-0.5	0.37	0.37			
	48-80	15-27	1.30-1.45	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.37	0.37			
515C2, 515C3, 515D3:												
Bunkum----------	0-8	18-35	1.25-1.35	0.20-0.60	0.20-0.24	Moderate-	1.0-2.0	0.43	0.43	5	7	38
	8-40	25-35	1.25-1.45	0.20-0.60	0.16-0.22	Moderate-	0.5-1.0	0.37	0.37			
	40-58	18-27	1.30-1.50	0.20-0.60	0.18-0.22	Low------	0.5-1.0	0.49	0.49			
	58-80	15-27	1.30-1.55	0.20-0.60	0.18-0.22	Low------	0.0-0.5	0.37	0.37			
517A, 517B:												
Marine----------	0-9	10-18	1.30-1.50	0.60-2.00	0.22-0.24	Low------	1.0-2.0	0.43	0.43	3	5	56
	9-17	8-18	1.30-1.50	0.60-2.00	0.22-0.24	Low------	0.2-0.5	0.49	0.49			
	17-34	35-48	1.45-1.70	0.06-0.20	0.11-0.18	High-----	0.1-0.5	0.37	0.37			
	34-62	15-35	1.45-1.65	0.20-0.60	0.18-0.22	Moderate-	0.0-0.2	0.37	0.37			
	62-80	12-35	1.45-1.65	0.20-0.60	0.15-0.18	Low------	0.0-0.2	0.49	0.49			
582B:												
Homen-----------	0-9	18-27	1.20-1.65	0.60-2.00	0.22-0.24	Low------	1.0-2.0	0.43	0.43	5	6	48
	9-15	15-27	1.35-1.65	0.60-2.00	0.20-0.22	Low------	0.5-1.0	0.49	0.49			
	15-58	24-35	1.40-1.70	0.20-0.60	0.18-0.22	Moderate-	0.5-1.0	0.37	0.37			
	58-80	15-27	1.40-1.70	0.20-0.60	0.20-0.22	Low------	0.0-0.5	0.37	0.37			
582B2, 582C2:												
Homen-----------	0-7	18-27	1.20-1.65	0.60-2.00	0.22-0.24	Low------	1.0-2.0	0.43	0.43	5	6	48
	7-50	24-35	1.40-1.70	0.20-0.60	0.18-0.22	Moderate-	0.5-1.0	0.37	0.37			
	50-80	15-27	1.40-1.70	0.20-0.60	0.20-0.22	Low------	0.0-0.5	0.37	0.37			
585F2:												
Negley----------	0-7	12-27	1.30-1.50	2.00-6.00	0.16-0.22	Low------	1.0-3.0	0.43	0.43	5	5	56
	7-50	18-35	1.30-1.60	0.60-6.00	0.10-0.16	Low------	0.0-0.5	0.20	0.32			
	50-80	22-38	1.20-1.60	0.60-6.00	0.06-0.14	Low------	0.0-0.5	0.20	0.32			
801B, 801D:												
Orthents, silty-	0-60	20-35	1.35-1.55	0.20-2.00	0.18-0.22	Moderate-	0.0-0.5	0.49	0.49	5	6	48
802B, 802D:												
Orthents, loamy-	0-6	22-30	1.70-1.75	0.20-0.60	0.18-0.22	Moderate-	0.5-1.0	0.43	0.43	5	4	86
	6-60	22-30	1.70-1.80	0.20-0.60	0.16-0.20	Moderate-	0.0-1.0	0.43	0.43			
821G:												
Morristown------	0-6	27-35	1.50-1.75	0.20-0.60	0.07-0.14	Moderate-	0.0-0.5	0.32	0.64	5	8	---
	6-60	20-35	1.65-1.90	0.20-0.60	0.03-0.11	Moderate-	0.0-0.3	0.43	0.64			
824B:												
Swanwick--------	0-8	27-35	1.25-1.60	0.20-0.60	0.18-0.20	Moderate-	0.0-0.5	0.32	0.32	4	7	38
	8-23	15-35	1.50-1.70	0.06-0.20	0.08-0.12	Low------	0.0-1.0	0.43	0.43			
	23-63	27-35	1.60-1.90	0.01-0.06	0.05-0.12	Moderate-	0.0-1.0	0.43	0.43			
	63-80	15-35	1.60-2.00	0.01-0.06	0.03-0.18	Low------	0.0-1.0	0.43	0.43			
825B:												
Lenzburg, acid substratum-----	0-5	27-35	1.30-1.60	0.20-0.60	0.17-0.20	Moderate-	0.5-1.0	0.32	0.32	4	4L	86
	5-32	20-35	1.40-1.70	0.20-0.60	0.11-0.17	Moderate-	0.5-1.0	0.43	0.43			
	32-60	0-5	1.50-2.00	0.60-6.00	0.01-0.07	Low------	0.0-1.0	0.17	---			
826D:												
Orthents, acid substratum-----	0-29	20-35	1.35-1.55	0.20-2.00	0.18-0.22	Moderate-	0.0-0.5	0.43	0.49	4	6	48
	29-60	0-5	1.50-2.00	0.60-6.00	0.01-0.07	Low------	0.0-0.5	0.17	---			

Table 19.–Physical Properties of the Soils–continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
871B, 871D, 871G:												
Lenzburg--------	0-3	27-35	1.30-1.60	0.60-2.00	0.17-0.22	Moderate-	0.5-2.0	0.32	0.32	5	8	---
	3-26	18-35	1.30-1.70	0.20-0.60	0.17-0.20	Moderate-	0.2-1.0	0.43	0.43			
	26-60	18-35	1.40-1.70	0.20-0.60	0.11-0.18	Moderate-	0.2-1.0	0.43	0.43			
878C3:												
Coulterville----	0-5	27-35	1.35-1.55	0.20-0.60	0.14-0.19	Moderate-	0.5-1.0	0.37	0.37	5	7	38
	5-20	22-35	1.40-1.60	0.06-0.20	0.14-0.24	Moderate-	0.0-0.5	0.37	0.37			
	20-48	18-35	1.45-1.60	0.06-0.20	0.10-0.15	Moderate-	0.0-0.5	0.37	0.37			
	48-80	15-30	1.40-1.60	0.20-0.60	0.05-0.10	Low------	0.0-0.5	0.49	0.49			
Grantfork-------	0-5	27-30	1.35-1.55	0.20-0.60	0.15-0.18	Low------	0.5-1.0	0.37	0.37	5	7	38
	5-37	20-30	1.40-1.60	0.20-0.60	0.15-0.20	Low------	0.0-0.2	0.37	0.37			
	37-80	20-48	1.65-1.80	0.06-0.20	0.07-0.10	Moderate-	0.0-0.1	0.37	0.37			
880B2:												
Coulterville----	0-7	15-27	1.40-1.60	0.20-0.60	0.21-0.24	Low------	0.5-1.0	0.43	0.43	5	6	48
	7-23	22-35	1.40-1.60	0.06-0.20	0.14-0.24	Moderate-	0.0-0.5	0.37	0.37			
	23-56	18-35	1.45-1.60	0.06-0.20	0.10-0.15	Moderate-	0.0-0.5	0.37	0.37			
	56-80	15-30	1.40-1.60	0.20-0.60	0.05-0.10	Low------	0.0-0.5	0.49	0.49			
Darmstadt-------	0-7	12-27	1.30-1.50	0.06-0.20	0.22-0.24	Low------	0.5-2.0	0.43	0.43	3	6	48
	7-21	27-35	1.40-1.65	0.06-0.20	0.11-0.20	Moderate-	0.0-1.0	0.37	0.37			
	21-39	20-35	1.40-1.65	0.01-0.06	0.09-0.10	Moderate-	0.0-1.0	0.37	0.37			
	39-80	15-30	1.50-1.70	0.01-0.06	0.10-0.15	Low------	0.0-1.0	0.49	0.49			
882A:												
Oconee----------	0-8	20-27	1.20-1.30	0.60-2.00	0.22-0.24	Moderate-	2.0-3.0	0.37	0.37	5	6	48
	8-16	18-27	1.30-1.45	0.06-0.20	0.20-0.22	Moderate-	0.0-0.5	0.49	0.49			
	16-47	35-42	1.30-1.50	0.06-0.20	0.11-0.17	High-----	0.0-1.0	0.37	0.37			
	47-58	20-35	1.40-1.60	0.06-0.20	0.16-0.21	Moderate-	0.0-1.0	0.37	0.37			
	58-80	17-27	1.40-1.60	0.06-0.20	0.20-0.22	Moderate-	0.0-0.5	0.49	0.49			
Darmstadt-------	0-11	12-27	1.30-1.50	0.06-0.20	0.22-0.24	Low------	0.5-2.0	0.43	0.43	3	6	48
	11-21	27-35	1.40-1.65	0.06-0.20	0.11-0.20	Moderate-	0.0-1.0	0.37	0.37			
	21-39	20-35	1.40-1.65	0.01-0.06	0.09-0.10	Moderate-	0.0-1.0	0.37	0.37			
	39-80	15-30	1.50-1.70	0.01-0.06	0.10-0.15	Low------	0.0-1.0	0.49	0.49			
Coulterville----	0-7	15-27	1.40-1.60	0.20-0.60	0.21-0.24	Low------	0.5-1.0	0.43	0.43	5	6	48
	7-23	22-35	1.40-1.60	0.06-0.20	0.14-0.24	Moderate-	0.0-0.5	0.37	0.37			
	23-56	18-35	1.45-1.60	0.06-0.20	0.10-0.15	Moderate-	0.0-0.5	0.37	0.37			
	56-80	15-30	1.40-1.60	0.20-0.60	0.05-0.10	Low------	0.0-0.5	0.49	0.49			
882B:												
Oconee----------	0-8	20-27	1.20-1.30	0.60-2.00	0.22-0.24	Moderate-	2.0-3.0	0.37	0.37	5	6	48
	8-16	18-27	1.30-1.45	0.06-0.20	0.20-0.22	Moderate-	0.0-0.5	0.49	0.49			
	16-47	35-42	1.30-1.50	0.06-0.20	0.11-0.17	High-----	0.0-1.0	0.37	0.37			
	47-58	20-35	1.40-1.60	0.06-0.20	0.16-0.21	Moderate-	0.0-1.0	0.37	0.37			
	58-80	17-27	1.40-1.60	0.06-0.20	0.20-0.22	Moderate-	0.0-0.5	0.49	0.49			
Coulterville----	0-7	15-27	1.40-1.60	0.20-0.60	0.21-0.24	Low------	0.5-1.0	0.43	0.43	5	6	48
	7-23	22-35	1.40-1.60	0.06-0.20	0.14-0.24	Moderate-	0.0-0.5	0.37	0.37			
	23-56	18-35	1.45-1.60	0.06-0.20	0.10-0.15	Moderate-	0.0-0.5	0.37	0.37			
	56-80	15-30	1.40-1.60	0.20-0.60	0.05-0.10	Low------	0.0-0.5	0.49	0.49			
Darmstadt-------	0-11	12-27	1.30-1.50	0.06-0.20	0.22-0.24	Low------	0.5-2.0	0.43	0.43	3	6	48
	11-21	27-35	1.40-1.65	0.06-0.20	0.11-0.20	Moderate-	0.0-1.0	0.37	0.37			
	21-39	20-35	1.40-1.65	0.01-0.06	0.09-0.10	Moderate-	0.0-1.0	0.37	0.37			
	39-80	15-30	1.50-1.70	0.01-0.06	0.10-0.15	Low------	0.0-1.0	0.49	0.49			
884C3:												
Bunkum----------	0-8	18-35	1.25-1.35	0.20-0.60	0.20-0.24	Moderate-	1.0-2.0	0.37	0.37	5	7	38
	8-40	25-35	1.25-1.45	0.20-0.60	0.16-0.22	Moderate-	0.5-1.0	0.37	0.37			
	40-58	18-27	1.30-1.50	0.20-0.60	0.18-0.22	Low------	0.5-1.0	0.49	0.49			
	58-80	15-27	1.30-1.55	0.20-0.60	0.18-0.22	Low------	0.0-0.5	0.37	0.37			

Table 19.–Physical Properties of the Soils–continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
884C3:												
Coulterville----	0-5	27-35	1.35-1.55	0.20-0.60	0.14-0.19	Moderate-	0.5-1.0	0.37	0.37	5	7	38
	5-20	22-35	1.40-1.60	0.06-0.20	0.14-0.24	Moderate-	0.0-0.5	0.37	0.37			
	20-48	18-35	1.45-1.60	0.06-0.20	0.10-0.15	Moderate-	0.0-0.5	0.37	0.37			
	48-80	15-30	1.40-1.60	0.20-0.60	0.05-0.10	Low------	0.0-0.5	0.49	0.49			
885A:												
Virden----------	0-15	20-27	1.20-1.40	0.60-2.00	0.21-0.24	Moderate-	3.0-6.0	0.24	0.24	5	6	48
	15-74	35-42	1.20-1.45	0.20-0.60	0.11-0.20	High-----	0.0-2.0	0.37	0.37			
	74-86	25-33	1.25-1.55	0.20-0.60	0.18-0.22	Moderate-	0.0-0.5	0.49	0.49			
Fosterburg------	0-13	20-27	1.15-1.35	0.60-2.00	0.22-0.24	Moderate-	4.0-6.0	0.24	0.24	3	6	48
	13-41	35-42	1.25-1.45	0.06-0.20	0.16-0.20	High-----	1.0-2.0	0.37	0.37			
	41-71	24-40	1.30-1.50	0.06-0.20	0.18-0.22	High-----	0.5-1.0	0.37	0.37			
	71-80	18-27	1.30-1.55	0.20-0.60	0.20-0.22	Low------	0.0-0.5	0.37	0.37			
886F3:												
Ruma------------	0-5	27-35	1.20-1.30	0.60-2.00	0.18-0.20	Moderate-	0.5-1.0	0.37	0.37	5	6	48
	5-48	22-35	1.25-1.40	0.60-2.00	0.18-0.22	Moderate-	0.0-0.5	0.37	0.37			
	48-80	15-27	1.30-1.45	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.37	0.37			
Ursa------------	0-3	35-40	1.40-1.60	0.20-0.60	0.11-0.19	Moderate-	0.5-1.0	0.28	0.28	2	4	86
	3-68	35-45	1.50-1.70	0.06-0.20	0.09-0.17	High-----	0.5-1.0	0.28	0.37			
	68-80	25-45	1.55-1.75	0.06-0.20	0.08-0.17	Moderate-	0.0-0.5	0.28	0.37			
894A:												
Herrick---------	0-17	20-27	1.15-1.30	0.60-2.00	0.22-0.24	Moderate-	3.0-4.0	0.28	0.28	5	6	48
	17-43	35-42	1.20-1.40	0.20-0.60	0.12-0.17	High-----	0.2-1.0	0.37	0.37			
	43-64	25-40	1.20-1.40	0.20-0.60	0.16-0.20	Moderate-	0.0-0.4	0.37	0.37			
	64-80	20-30	1.30-1.50	0.20-0.60	0.16-0.21	Moderate-	0.0-0.2	0.49	0.49			
Biddle----------	0-16	18-27	1.15-1.35	0.60-2.00	0.20-0.24	Low------	2.0-4.0	0.28	0.28	5	6	48
	16-36	35-42	1.25-1.45	0.06-0.20	0.14-0.20	High-----	0.5-1.0	0.37	0.37			
	36-62	24-38	1.30-1.50	0.06-0.20	0.16-0.22	High-----	0.5-1.0	0.37	0.37			
	62-99	18-27	1.30-1.55	0.20-0.60	0.18-0.22	Low------	0.0-0.5	0.37	0.37			
Piasa-----------	0-8	18-27	1.25-1.45	0.20-0.60	0.22-0.24	Moderate-	2.0-4.0	0.37	0.37	2	6	48
	8-12	18-27	1.30-1.50	0.06-0.20	0.18-0.20	Moderate-	0.5-1.0	0.49	0.49			
	12-37	35-43	1.35-1.55	0.01-0.06	0.09-0.10	High-----	0.5-1.0	0.37	0.37			
	37-80	20-35	1.50-1.70	0.06-0.20	0.10-0.12	Moderate-	0.0-0.5	0.49	0.49			
897D3:												
Bunkum----------	0-8	18-35	1.25-1.35	0.20-0.60	0.20-0.24	Moderate-	1.0-2.0	0.37	0.37	5	7	38
	8-40	25-35	1.25-1.45	0.20-0.60	0.16-0.22	Moderate-	0.5-1.0	0.37	0.37			
	40-58	18-27	1.30-1.50	0.20-0.60	0.18-0.22	Low------	0.5-1.0	0.49	0.49			
	58-80	15-27	1.30-1.55	0.20-0.60	0.18-0.22	Low------	0.0-0.5	0.37	0.37			
Atlas-----------	0-9	30-40	1.35-1.55	0.06-0.20	0.14-0.19	High-----	0.5-1.0	0.28	0.28	2	7	38
	9-31	35-45	1.35-1.55	0.01-0.06	0.07-0.19	High-----	0.0-1.0	0.28	0.32			
	31-51	30-45	1.35-1.55	0.01-0.06	0.07-0.19	High-----	0.0-1.0	0.28	0.32			
	51-80	20-30	1.35-1.60	0.06-0.20	0.07-0.18	Moderate-	0.0-1.0	0.28	0.32			
906C3:												
Redbud----------	0-5	27-35	1.35-1.55	0.60-2.00	0.18-0.22	Moderate-	0.5-1.0	0.37	0.37	5	7	38
	5-10	12-32	1.30-1.50	0.60-2.00	0.18-0.22	Moderate-	0.0-0.5	0.49	0.49			
	10-40	22-35	1.35-1.60	0.20-0.60	0.16-0.20	Moderate-	0.0-0.5	0.37	0.37			
	40-80	24-55	1.35-1.60	0.06-0.20	0.10-0.18	High-----	0.0-0.5	0.37	0.37			
Hurst-----------	0-5	27-35	1.40-1.65	0.20-0.60	0.18-0.22	Moderate-	0.5-1.0	0.32	0.32	2	7	38
	5-50	35-48	1.45-1.70	0.01-0.06	0.10-0.17	High-----	0.0-0.2	0.32	0.32			
	50-80	20-45	1.50-1.70	0.01-0.06	0.10-0.18	High-----	0.1-0.4	0.32	0.32			

Table 19.–Physical Properties of the Soils–continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
907D3:												
Redbud----------	0-5	27-35	1.35-1.55	0.60-2.00	0.18-0.22	Moderate-	0.5-1.0	0.37	0.37	5	7	38
	5-10	12-32	1.30-1.50	0.60-2.00	0.18-0.22	Moderate-	0.0-0.5	0.49	0.49			
	10-40	22-35	1.35-1.60	0.20-0.60	0.16-0.20	Moderate-	0.0-0.5	0.37	0.37			
	40-80	24-55	1.35-1.60	0.06-0.20	0.10-0.18	High-----	0.0-0.5	0.37	0.37			
Colp------------	0-5	27-35	1.35-1.55	0.20-0.60	0.14-0.19	Moderate-	0.5-1.0	0.32	0.32	5	7	38
	5-70	35-50	1.45-1.70	0.06-0.20	0.10-0.17	High-----	0.0-0.5	0.32	0.32			
	70-80	30-45	1.50-1.70	0.06-0.20	0.10-0.18	High-----	0.0-0.5	0.32	0.32			
962F2, 962G:												
Sylvan----------	0-5	20-27	1.20-1.40	0.60-2.00	0.20-0.22	Low------	1.0-2.0	0.43	0.43	5	6	48
	5-25	25-35	1.30-1.50	0.60-2.00	0.18-0.20	Moderate-	0.0-0.5	0.37	0.37			
	25-80	10-27	1.30-1.50	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.49	0.49			
Bold------------	0-12	12-18	1.40-1.60	0.60-2.00	0.21-0.24	Low------	0.5-2.0	0.43	0.43	5	4L	86
	12-60	12-18	1.10-1.30	0.60-2.00	0.20-0.24	Low------	0.0-0.5	0.55	0.55			
993A:												
Cowden----------	0-8	17-27	1.30-1.50	0.60-2.00	0.22-0.24	Low------	2.0-3.0	0.37	0.37	5	6	48
	8-19	17-27	1.25-1.45	0.06-0.20	0.18-0.20	Low------	0.0-0.5	0.49	0.49			
	19-50	35-42	1.35-1.60	0.06-0.20	0.12-0.20	High-----	0.0-1.0	0.37	0.37			
	50-80	20-30	1.50-1.70	0.20-0.60	0.17-0.22	Moderate-	0.0-0.5	0.37	0.37			
Piasa-----------	0-8	18-27	1.25-1.45	0.20-0.60	0.22-0.24	Moderate-	2.0-4.0	0.37	0.37	2	6	48
	8-12	18-27	1.30-1.50	0.06-0.20	0.18-0.20	Moderate-	0.5-1.0	0.49	0.49			
	12-37	35-43	1.35-1.55	0.01-0.06	0.09-0.10	High-----	0.5-1.0	0.37	0.37			
	37-80	20-35	1.50-1.70	0.06-0.20	0.10-0.12	Moderate-	0.0-0.5	0.49	0.49			
1071A:												
Darwin, undrained------	0-20	40-45	1.20-1.40	0.01-0.06	0.11-0.14	Very high	4.0-5.0	0.24	0.24	5	4	86
	20-64	45-60	1.30-1.50	0.01-0.06	0.11-0.14	Very high	0.0-2.0	0.28	0.28			
	64-80	30-55	1.40-1.60	0.06-0.20	0.10-0.20	High-----	0.0-0.5	0.28	0.28			
1248A:												
McFain, undrained------	0-13	40-45	1.20-1.40	0.06-0.20	0.12-0.18	High-----	3.0-5.0	0.24	0.24	5	4	86
	13-20	40-45	1.40-1.55	0.06-0.20	0.11-0.13	High-----	0.5-2.0	0.28	0.28			
	20-52	10-20	1.45-1.65	0.20-2.00	0.12-0.22	Low------	0.0-1.0	0.24	0.24			
	52-80	15-30	1.45-1.65	0.20-2.00	0.14-0.20	Moderate-	0.0-1.0	0.28	0.28			
1288A:												
Petrolia, undrained------	0-8	27-35	1.20-1.40	0.20-0.60	0.21-0.23	Moderate-	2.0-3.0	0.32	0.32	5	7	38
	8-54	27-35	1.35-1.45	0.20-0.60	0.18-0.20	Moderate-	0.2-1.0	0.32	0.32			
	54-80	20-35	1.40-1.60	0.20-0.60	0.18-0.20	Moderate-	0.2-1.0	0.32	0.32			
2071L:												
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Darwin----------	0-16	40-45	1.20-1.40	0.01-0.06	0.11-0.14	Very high	4.0-5.0	0.24	0.24	5	4	86
	16-62	45-60	1.30-1.50	0.01-0.06	0.11-0.14	Very high	0.0-2.0	0.28	0.28			
	62-80	30-55	1.40-1.60	0.06-0.20	0.10-0.20	High-----	0.0-0.5	0.28	0.28			
2079D, 2079E:												
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Menfro----------	0-9	18-27	1.25-1.40	0.60-2.00	0.22-0.24	Low------	0.5-2.0	0.43	0.43	5	6	48
	9-52	27-33	1.35-1.50	0.60-2.00	0.18-0.20	Moderate-	0.0-0.5	0.37	0.37			
	52-80	8-20	1.30-1.45	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.55	0.55			
2183A:												
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---

Table 19.—Physical Properties of the Soils—continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
Shaffton--------	0-10	27-30	1.45-1.55	0.60-2.00	0.20-0.22	Moderate-	2.0-3.0	0.24	0.24	5	6	48
	10-33	18-26	1.55-1.65	0.60-2.00	0.17-0.19	Moderate-	1.0-3.0	0.28	0.28			
	33-43	8-16	1.65-1.70	6.00-20.00	0.05-0.08	Low------	0.0-0.5	0.24	0.24			
	43-60	28-32	1.45-1.50	0.60-2.00	0.17-0.19	Moderate-	0.0-0.5	0.32	0.32			
2384B:												
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Edwardsville----	0-15	20-30	1.20-1.35	0.60-2.00	0.22-0.24	Moderate-	4.0-6.0	0.28	0.28	5	6	48
	15-57	20-35	1.30-1.50	0.60-2.00	0.18-0.22	Moderate-	0.5-2.0	0.37	0.37			
	57-80	18-25	1.30-1.55	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.49	0.49			
2477B:												
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Winfield--------	0-9	20-27	1.30-1.50	0.60-2.00	0.22-0.24	Low------	0.5-2.0	0.43	0.43	5	6	48
	9-13	22-30	1.30-1.50	0.60-2.00	0.18-0.22	Moderate-	0.5-1.0	0.49	0.49			
	13-62	24-35	1.30-1.50	0.60-2.00	0.18-0.20	Moderate-	0.0-0.5	0.37	0.37			
	62-80	20-27	1.30-1.50	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.49	0.49			
3038B:												
Rocher----------	0-5	10-18	1.55-1.75	2.00-6.00	0.20-0.24	Low------	0.5-1.0	0.32	0.32	5	4L	86
	5-53	5-18	1.65-1.85	2.00-6.00	0.12-0.17	Low------	0.5-1.0	0.24	0.24			
	53-62	2-15	1.50-1.90	2.00-6.00	0.05-0.10	Low------	0.0-0.5	0.24	0.24			
3070L:												
Beaucoup--------	0-16	27-35	1.15-1.35	0.60-2.00	0.15-0.20	Moderate-	5.0-6.0	0.28	0.28	5	7	38
	16-64	27-35	1.30-1.50	0.60-2.00	0.18-0.20	Moderate-	0.0-2.0	0.32	0.32			
	64-80	10-30	1.40-1.65	0.60-2.00	0.18-0.22	Moderate-	0.0-1.0	0.37	0.37			
3076A:												
Otter-----------	0-37	18-27	1.10-1.25	0.60-2.00	0.22-0.24	Low------	3.0-10	0.32	0.32	5	6	48
	37-55	18-27	1.20-1.45	0.60-2.00	0.17-0.22	Moderate-	1.0-3.0	0.49	0.49			
	55-80	15-28	1.30-1.55	0.60-2.00	0.15-0.20	Low------	0.5-2.0	0.49	0.49			
3083L:												
Wabash----------	0-10	40-55	1.20-1.30	0.01-0.06	0.13-0.15	Very high	2.0-4.0	0.24	0.24	5	4	86
	10-80	40-55	1.20-1.30	0.01-0.06	0.10-0.14	Very high	1.0-2.0	0.28	0.28			
3180A:												
Dupo------------	0-9	10-18	1.25-1.45	0.60-2.00	0.22-0.24	Low------	1.0-2.0	0.43	0.43	5	5	56
	9-25	10-18	1.30-1.50	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.55	0.55			
	25-80	35-45	1.35-1.60	0.06-0.20	0.08-0.19	High-----	0.2-1.0	0.28	0.28			
3288L:												
Petrolia--------	0-8	27-35	1.20-1.40	0.20-0.60	0.21-0.23	Moderate-	2.0-3.0	0.32	0.32	5	7	38
	8-55	27-35	1.35-1.45	0.20-0.60	0.18-0.20	Moderate-	0.2-1.0	0.32	0.32			
	55-80	20-35	1.40-1.60	0.20-0.60	0.18-0.20	Moderate-	0.2-1.0	0.32	0.32			
3333A:												
Wakeland--------	0-7	10-18	1.30-1.50	0.60-2.00	0.20-0.24	Low------	1.0-3.0	0.43	0.43	5	5	56
	7-29	10-18	1.30-1.50	0.60-2.00	0.20-0.24	Low------	0.0-1.0	0.55	0.55			
	29-80	10-18	1.30-1.50	0.60-2.00	0.18-0.24	Low------	0.0-0.5	0.55	0.55			
3334L:												
Birds-----------	0-8	15-25	1.30-1.50	0.20-0.60	0.21-0.25	Low------	1.0-3.0	0.43	0.43	5	6	48
	8-80	18-27	1.40-1.60	0.20-0.60	0.20-0.22	Low------	0.0-2.0	0.49	0.49			
3336A:												
Wilbur----------	0-7	10-18	1.30-1.50	0.60-2.00	0.20-0.24	Low------	1.0-3.0	0.43	0.43	5	5	56
	7-32	10-18	1.30-1.50	0.60-2.00	0.20-0.24	Low------	0.5-2.0	0.49	0.49			
	32-60	10-26	1.30-1.50	0.60-2.00	0.20-0.22	Low------	0.5-1.0	0.49	0.49			
3391A:												
Blake-----------	0-6	27-38	1.25-1.30	0.60-2.00	0.20-0.22	Moderate-	1.0-3.0	0.32	0.32	5	4L	86
	6-33	22-35	1.25-1.30	0.60-2.00	0.20-0.22	Moderate-	0.0-1.0	0.32	0.32			
	33-60	10-20	1.30-1.35	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.55	0.55			

Table 19.—Physical Properties of the Soils—continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
3394A, 3394B:												
Haynie----------	0-8	15-25	1.20-1.35	0.60-2.00	0.18-0.23	Low------	1.0-3.0	0.37	0.37	5	4L	86
	8-60	15-18	1.20-1.35	0.60-2.00	0.18-0.23	Low------	0.5-1.0	0.32	0.32			
3415A:												
Orion-----------	0-7	10-18	1.20-1.30	0.60-2.00	0.22-0.24	Low------	1.0-3.0	0.43	0.43	5	5	56
	7-35	10-18	1.20-1.30	0.60-2.00	0.20-0.22	Low------	1.0-3.0	0.55	0.55			
	35-54	10-30	1.25-1.45	0.60-2.00	0.18-0.22	Low------	3.0-8.0	0.49	0.49			
	54-66	10-18	1.20-1.40	0.60-2.00	0.18-0.22	Low------	0.0-0.5	0.55	0.55			
3428A:												
Coffeen---------	0-10	15-27	1.35-1.55	0.60-2.00	0.22-0.25	Low------	2.0-3.0	0.32	0.32	5	6	48
	10-47	10-18	1.40-1.60	0.60-2.00	0.20-0.22	Low------	0.0-2.0	0.49	0.49			
	47-60	5-15	1.50-1.70	0.60-6.00	0.11-0.19	Low------	0.0-2.0	0.55	0.55			
3847L:												
Fluvaquents-----	0-10	12-24	1.25-1.40	0.60-2.00	0.20-0.24	Low------	2.0-4.0	0.37	0.37	5	5	56
	10-60	5-24	1.30-1.55	0.60-2.00	0.06-0.17	Low------	0.0-2.0	0.28	0.28			
Orthents--------	0-6	22-30	1.70-1.75	0.20-0.60	0.18-0.22	Moderate-	0.5-1.0	0.43	0.43	5	4	86
	6-60	22-30	1.70-1.80	0.20-0.60	0.16-0.20	Moderate-	0.0-1.0	0.43	0.43			
5079C, 5079D:												
Menfro, karst---	0-5	18-27	1.25-1.40	0.60-2.00	0.22-0.24	Low------	0.5-2.0	0.37	0.37	5	6	48
	5-50	27-33	1.35-1.50	0.60-2.00	0.18-0.20	Moderate-	0.0-0.5	0.37	0.37			
	50-80	8-20	1.30-1.45	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.55	0.55			
5079G:												
Menfro, karst---	0-9	18-27	1.25-1.40	0.60-2.00	0.22-0.24	Low------	0.5-2.0	0.43	0.43	5	6	48
	9-52	27-33	1.35-1.50	0.60-2.00	0.18-0.20	Moderate-	0.0-0.5	0.37	0.37			
	52-80	8-20	1.30-1.45	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.55	0.55			
8026A:												
Wagner----------	0-9	20-25	1.35-1.55	0.20-0.60	0.22-0.24	Low------	2.0-3.0	0.37	0.37	3	6	48
	9-17	18-25	1.35-1.55	0.20-0.60	0.20-0.22	Low------	0.2-0.5	0.49	0.49			
	17-67	35-47	1.35-1.55	0.00-0.06	0.09-0.20	High-----	0.2-1.0	0.32	0.32			
	67-80	35-40	1.35-1.55	0.00-0.06	0.18-0.20	Moderate-	0.2-0.5	0.37	0.37			
8070A:												
Beaucoup--------	0-16	27-35	1.15-1.35	0.60-2.00	0.15-0.20	Moderate-	5.0-6.0	0.28	0.28	5	7	38
	16-64	27-35	1.30-1.50	0.60-2.00	0.18-0.20	Moderate-	0.0-2.0	0.32	0.32			
	64-80	10-30	1.40-1.65	0.60-2.00	0.18-0.22	Moderate-	0.0-1.0	0.37	0.37			
8071L:												
Darwin----------	0-16	40-45	1.20-1.40	0.00-0.06	0.11-0.14	Very high	4.0-5.0	0.24	0.24	5	4	86
	16-62	45-60	1.30-1.50	0.00-0.06	0.11-0.14	Very high	0.0-2.0	0.28	0.28			
	62-80	30-55	1.40-1.60	0.06-0.20	0.10-0.20	High-----	0.0-0.5	0.28	0.28			
8084A:												
Okaw------------	0-7	15-27	1.20-1.40	0.60-2.00	0.22-0.24	Low------	1.0-2.0	0.43	0.43	3	6	48
	7-15	12-30	1.30-1.50	0.20-0.60	0.18-0.20	Low------	0.5-1.0	0.49	0.49			
	15-54	35-60	1.35-1.60	0.01-0.06	0.09-0.18	High-----	0.0-0.5	0.32	0.32			
	54-80	35-55	1.50-1.70	0.01-0.06	0.08-0.20	High-----	0.0-0.5	0.37	0.37			
8109A:												
Racoon----------	0-6	20-27	1.30-1.50	0.20-0.60	0.22-0.24	Moderate-	1.0-2.0	0.43	0.43	5	6	48
	6-30	18-25	1.35-1.50	0.20-0.60	0.20-0.22	Moderate-	0.0-0.5	0.49	0.49			
	30-59	24-38	1.35-1.60	0.06-0.20	0.18-0.20	Moderate-	0.5-1.0	0.37	0.37			
	59-73	18-30	1.40-1.65	0.20-0.60	0.15-0.20	Moderate-	0.5-1.0	0.49	0.49			
8122C, 8122D:												
Colp------------	0-5	27-35	1.35-1.55	0.20-0.60	0.14-0.19	Moderate-	0.5-1.0	0.32	0.32	5	7	38
	5-70	35-50	1.45-1.70	0.06-0.20	0.10-0.17	High-----	0.0-0.5	0.32	0.32			
	70-80	30-45	1.50-1.70	0.06-0.20	0.10-0.18	High-----	0.0-0.5	0.37	0.37			
8131B:												
Alvin-----------	0-9	8-15	1.45-1.65	2.00-6.00	0.14-0.18	Low------	0.5-1.0	0.24	0.24	5	3	86
	9-47	15-18	1.45-1.65	2.00-6.00	0.14-0.16	Low------	0.5-1.0	0.24	0.24			
	47-80	3-10	1.55-1.65	2.00-20.00	0.08-0.14	Low------	0.5-1.0	0.24	0.24			

Table 19.—Physical Properties of the Soils—continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
	In	Pct	g/cc	In/hr	In/in		Pct					
8162A:												
Gorham----------	0-14	27-42	1.30-1.50	0.20-0.60	0.13-0.20	Moderate-	4.0-5.0	0.28	0.28	5	4	86
	14-36	27-42	1.35-1.55	0.20-0.60	0.11-0.18	Moderate-	0.2-1.0	0.32	0.32			
	36-62	22-30	1.40-1.65	0.60-2.00	0.15-0.19	Moderate-	0.0-0.5	0.32	0.32			
	62-80	5-15	1.50-1.75	2.00-20.00	0.05-0.13	Low------	0.0-0.5	0.24	0.24			
8180A:												
Dupo------------	0-9	10-18	1.25-1.45	0.60-2.00	0.22-0.24	Low------	1.0-2.0	0.43	0.43	5	5	56
	9-25	10-18	1.30-1.50	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.55	0.55			
	25-80	35-45	1.35-1.60	0.06-0.20	0.08-0.19	High-----	0.2-1.0	0.28	0.28			
8183A:												
Shaffton--------	0-12	27-30	1.45-1.55	0.60-2.00	0.20-0.22	Moderate-	2.0-3.0	0.24	0.24	5	6	48
	12-24	18-26	1.55-1.65	0.60-2.00	0.17-0.19	Moderate-	1.0-3.0	0.28	0.28			
	24-66	8-16	1.65-1.70	6.00-20.00	0.05-0.08	Low------	0.0-0.5	0.24	0.24			
	66-80	2-6	1.65-1.75	>20.00	0.03-0.05	Low------	0.0-0.5	0.32	0.32			
8284A:												
Tice------------	0-16	27-35	1.25-1.45	0.60-2.00	0.21-0.24	Moderate-	2.0-4.0	0.28	0.28	5	7	38
	16-72	24-35	1.30-1.50	0.60-2.00	0.18-0.21	Moderate-	0.0-1.0	0.32	0.32			
	72-80	10-30	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-1.0	0.32	0.32			
8304B:												
Landes----------	0-14	7-20	1.40-1.60	2.00-6.00	0.13-0.20	Low------	1.0-2.0	0.20	0.20	4	3	86
	14-39	5-18	1.60-1.70	2.00-6.00	0.10-0.15	Low------	0.0-2.0	0.24	0.24			
	39-80	5-18	1.60-1.80	6.00-20.00	0.05-0.15	Low------	0.0-2.0	0.24	0.24			
8338A:												
Hurst-----------	0-7	20-27	1.25-1.45	0.20-0.60	0.22-0.24	Low------	1.0-2.0	0.43	0.43	3	6	48
	7-12	18-30	1.30-1.50	0.20-0.60	0.20-0.22	Low------	0.0-0.5	0.49	0.49			
	12-62	35-48	1.45-1.70	0.01-0.06	0.10-0.17	High-----	0.0-0.5	0.32	0.32			
	62-80	20-45	1.50-1.70	0.01-0.06	0.10-0.18	High-----	0.0-0.5	0.32	0.32			
8338B:												
Hurst-----------	0-6	20-27	1.25-1.45	0.20-0.60	0.22-0.24	Low------	1.0-2.0	0.43	0.43	3	6	48
	6-10	18-30	1.30-1.50	0.20-0.60	0.20-0.22	Low------	0.0-0.5	0.49	0.49			
	10-56	35-48	1.45-1.70	0.01-0.06	0.10-0.17	High-----	0.0-0.5	0.32	0.32			
	56-80	20-45	1.50-1.70	0.01-0.06	0.10-0.18	High-----	0.0-0.5	0.32	0.32			
8338C:												
Hurst-----------	0-5	27-35	1.40-1.65	0.20-0.60	0.18-0.22	Moderate-	0.5-1.0	0.43	0.43	3	7	38
	5-50	35-48	1.45-1.70	0.01-0.06	0.10-0.17	High-----	0.0-0.5	0.32	0.32			
	50-80	20-45	1.50-1.70	0.01-0.06	0.10-0.18	High-----	0.0-0.5	0.32	0.32			
8394A:												
Haynie----------	0-8	15-25	1.20-1.35	0.60-2.00	0.18-0.23	Low------	1.0-3.0	0.37	0.37	5	4L	86
	8-60	15-18	1.20-1.35	0.60-2.00	0.18-0.23	Low------	0.5-1.0	0.32	0.32			
8432A:												
Geff------------	0-5	18-27	1.15-1.35	0.60-2.00	0.22-0.24	Low------	1.0-3.0	0.43	0.43	5	6	48
	5-12	18-27	1.35-1.45	0.60-2.00	0.20-0.22	Low------	0.5-1.0	0.49	0.49			
	12-33	24-35	1.35-1.55	0.60-2.00	0.18-0.20	Moderate-	0.5-1.0	0.37	0.37			
	33-62	15-30	1.40-1.75	0.60-2.00	0.15-0.18	Low------	0.5-1.0	0.32	0.32			
	62-80	1-5	1.55-1.75	6.00-20.00	0.03-0.08	Low------	0.5-1.0	0.17	0.17			
8434B:												
Ridgway---------	0-8	14-27	1.15-1.35	0.60-2.00	0.22-0.24	Low------	1.0-3.0	0.43	0.43	5	6	48
	8-27	22-35	1.35-1.55	0.60-2.00	0.16-0.20	Moderate-	0.0-2.0	0.37	0.37			
	27-52	10-30	1.45-1.65	0.60-6.00	0.11-0.18	Low------	0.0-1.0	0.32	0.32			
	52-80	2-10	1.55-1.85	6.00-20.00	0.05-0.10	Low------	0.0-0.5	0.17	0.17			
8436B:												
Meadowbank------	0-17	15-27	1.20-1.40	0.60-2.00	0.22-0.24	Low------	3.0-5.0	0.28	0.28	4	6	48
	17-34	27-35	1.35-1.55	0.60-2.00	0.16-0.19	Moderate-	0.0-2.0	0.37	0.37			
	34-53	10-30	1.45-1.65	0.60-6.00	0.10-0.18	Low------	0.0-0.5	0.32	0.32			
	53-80	2-10	1.55-1.80	6.00-20.00	0.05-0.10	Low------	0.0-0.5	0.17	0.17			

Table 19.—Physical Properties of the Soils—continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
8489A:												
Hurst, sandy substratum-----	0-10	20-27	1.25-1.45	0.20-0.60	0.22-0.24	Moderate-	1.0-2.0	0.43	0.43	3	6	48
	10-40	35-48	1.45-1.70	0.01-0.06	0.10-0.20	High-----	0.0-0.4	0.32	0.32			
	40-60	2-15	1.50-1.70	2.00-6.00	0.05-0.13	Low------	0.0-0.4	0.17	0.17			
8524L:												
Zipp-----------	0-8	40-50	1.40-1.60	0.06-0.20	0.12-0.14	High-----	1.0-3.0	0.24	0.24	5	4	86
	8-51	40-55	1.45-1.65	0.06-0.20	0.11-0.13	High-----	0.5-1.0	0.28	0.28			
	51-80	40-55	1.50-1.70	0.01-0.20	0.08-0.10	High-----	0.2-1.0	0.28	0.28			
8591A:												
Fults-----------	0-12	40-60	1.20-1.40	0.01-0.06	0.12-0.20	High-----	3.0-4.0	0.24	0.24	5	4	86
	12-32	35-60	1.30-1.50	0.01-0.06	0.11-0.18	High-----	0.2-1.0	0.28	0.28			
	32-42	10-35	1.40-1.70	0.60-6.00	0.12-0.16	Moderate-	0.0-0.2	0.32	0.32			
	42-80	3-20	1.60-1.80	0.60-6.00	0.05-0.13	Low------	0.0-0.1	0.24	0.24			
8592A:												
Nameoki---------	0-12	40-60	1.20-1.40	0.01-0.06	0.12-0.21	High-----	2.0-4.0	0.24	0.24	5	4	86
	12-28	35-60	1.30-1.50	0.01-0.06	0.11-0.18	High-----	0.5-1.0	0.28	0.28			
	28-54	15-35	1.45-1.70	0.60-2.00	0.12-0.20	Moderate-	0.0-0.5	0.32	0.32			
	54-80	5-30	1.50-1.80	0.60-2.00	0.05-0.18	Low------	0.0-0.5	0.24	0.24			
8646A:												
Fluvaquents, loamy----------	0-10	12-24	1.25-1.40	0.60-2.00	0.20-0.24	Low------	2.0-4.0	0.37	0.37	5	5	56
	10-60	5-24	1.30-1.55	0.60-2.00	0.06-0.17	Low------	0.0-2.0	0.28	0.28			
8812F:												
Typic Hapludalfs	0-8	15-27	1.35-1.65	0.06-2.00	0.18-0.20	Moderate-	1.0-3.0	0.43	0.43	5	6	48
	8-60	10-40	1.45-1.80	0.06-6.00	0.08-0.16	Moderate-	0.0-1.0	0.32	0.32			

Table 20.--Chemical Properties of the Soils

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	
5C2:						
Blair-----------	0-7	20-27	14.0-22.0	5.1-7.3	---	---
	7-22	25-35	15.0-23.0	4.5-6.0	---	---
	22-50	18-35	11.0-22.0	5.1-7.8	0-5	---
	50-80	20-35	12.0-17.0	5.6-7.8	0-20	0-3
5C3, 5D3:						
Blair-----------	0-5	20-27	14.0-22.0	5.1-7.3	---	---
	5-20	25-35	15.0-23.0	4.5-6.0	---	---
	20-47	18-35	11.0-22.0	5.1-7.8	0-5	---
	47-80	20-35	12.0-17.0	5.6-7.8	0-20	0-3
8F2:						
Hickory---------	0-12	19-25	14.0-19.0	4.5-7.3	---	---
	12-46	24-35	16.0-22.0	4.5-7.3	---	---
	46-58	15-32	9.0-19.0	5.1-7.8	---	---
	58-80	15-30	5.0-15.0	5.6-8.4	0-25	---
31A:						
Pierron---------	0-8	12-25	5.0-15.0	4.5-7.3	---	---
	8-20	10-22	5.0-10.0	4.5-7.3	---	---
	20-36	35-45	20.0-35.0	3.5-5.5	---	---
	36-66	27-42	15.0-30.0	4.5-7.3	---	---
	66-80	18-35	10.0-20.0	5.1-8.4	0-5	---
37A, 37B:						
Worthen---------	0-29	12-22	15.0-21.0	5.6-7.3	---	---
	29-64	15-26	11.0-14.0	5.6-7.8	---	---
	64-80	15-24	9.0-14.0	6.1-8.4	0-25	---
46A:						
Herrick---------	0-17	20-27	18.0-24.0	5.1-7.3	---	---
	17-43	35-42	21.0-25.0	4.5-6.0	---	---
	43-64	25-40	15.0-25.0	5.6-7.3	---	---
	64-80	20-30	12.0-18.0	5.6-8.4	---	---
50A:						
Virden----------	0-15	20-27	23.0-28.0	5.6-7.8	---	---
	15-74	35-42	21.0-27.0	5.6-7.8	---	---
	74-86	25-33	15.0-20.0	5.6-8.4	---	---
75B:						
Drury-----------	0-7	10-20	8.0-16.0	5.6-8.4	---	---
	7-43	18-25	11.0-15.0	5.6-7.3	---	---
	43-80	15-20	9.0-12.0	6.1-7.8	0-15	---
79B:						
Menfro----------	0-10	18-27	10.0-16.0	5.1-7.3	---	---
	10-62	27-33	15.0-20.0	5.1-7.3	---	---
	62-80	8-20	5.0-10.0	5.1-7.3	---	---
79C2, 79D2:						
Menfro----------	0-7	18-27	10.0-16.0	5.1-7.3	---	---
	7-56	27-33	15.0-20.0	5.1-7.3	---	---
	56-80	8-20	5.0-10.0	5.1-7.3	---	---
79C3, 79D3, 79F3:						
Menfro----------	0-5	27-30	16.0-20.0	5.1-7.3	---	---
	5-50	27-33	15.0-20.0	5.1-7.3	---	---
	50-80	8-20	5.0-10.0	5.1-7.3	---	---
79F, 79G:						
Menfro----------	0-9	18-27	10.0-16.0	5.1-7.3	---	---
	9-52	27-33	15.0-20.0	5.1-7.3	---	---
	52-80	8-20	5.0-10.0	5.1-7.3	---	---
81A:						
Littleton-------	0-10	18-27	15.0-25.0	5.6-7.8	---	---
	10-33	22-27	15.0-25.0	5.6-7.8	---	---
	33-80	18-27	11.0-18.0	5.6-7.8	---	---

Table 20.—Chemical Properties of the Soils—continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	
90A:						
Bethalto--------	0-8	18-27	16.0-24.0	5.6-7.3	---	---
	8-15	15-25	10.0-18.0	5.1-7.3	---	---
	15-70	20-35	15.0-28.0	5.1-7.8	---	---
	70-80	18-27	12.0-20.0	5.6-8.4	0-15	---
109A:						
Racoon----------	0-6	18-27	13.0-20.0	4.5-7.3	---	---
	6-26	18-27	11.0-17.0	4.5-7.3	---	---
	26-39	27-38	17.0-25.0	4.5-5.5	---	---
	39-47	27-35	17.0-23.0	4.5-6.0	---	---
	47-60	18-35	12.0-23.0	4.5-6.0	---	---
112A:						
Cowden----------	0-8	17-27	14.0-22.0	5.6-7.3	---	---
	8-19	17-27	10.0-17.0	4.5-6.0	---	---
	19-50	35-42	21.0-27.0	4.5-7.3	---	---
	50-80	20-30	12.0-17.0	5.6-7.8	---	---
113A, 113B:						
Oconee----------	0-8	20-27	12.0-18.0	5.6-7.8	---	---
	8-16	18-27	10.0-18.0	4.5-7.3	---	---
	16-47	35-42	21.0-26.0	4.5-6.0	---	---
	47-58	20-35	12.0-21.0	5.1-6.5	---	---
	58-80	17-27	10.0-16.0	5.6-7.8	---	---
267A, 267B:						
Caseyville------	0-7	18-27	16.0-24.0	5.6-7.3	---	---
	7-16	15-30	10.0-18.0	5.1-6.5	---	---
	16-62	20-35	15.0-28.0	5.1-6.5	---	---
	62-80	18-27	12.0-20.0	5.6-7.8	0-15	---
283B:						
Downsouth-------	0-13	18-27	15.0-25.0	5.1-7.3	---	---
	13-65	24-35	20.0-28.0	5.1-7.3	---	---
	65-80	18-27	12.0-20.0	5.6-7.8	0-15	---
283C2:						
Downsouth-------	0-9	18-27	15.0-25.0	5.1-7.3	---	---
	9-58	24-35	20.0-28.0	5.1-7.3	---	---
	58-80	18-27	12.0-20.0	5.6-7.8	0-15	---
384A, 384B:						
Edwardsville----	0-15	20-30	20.0-30.0	5.6-7.3	---	---
	15-57	20-35	20.0-30.0	5.1-7.8	---	---
	57-80	18-25	12.0-20.0	5.6-7.8	0-15	---
385A:						
Mascoutah-------	0-21	27-35	25.0-40.0	6.1-7.3	---	---
	21-58	27-35	25.0-35.0	6.1-7.8	---	---
	58-66	20-32	20.0-30.0	6.6-7.8	0-5	---
	66-80	18-30	12.0-20.0	6.6-8.4	0-15	---
423A, 423B:						
Millstadt-------	0-9	12-25	5.0-15.0	5.1-7.3	---	---
	9-18	12-30	5.0-10.0	4.5-7.3	---	---
	18-53	22-35	20.0-30.0	3.5-6.0	---	---
	53-80	24-55	15.0-35.0	4.5-7.8	0-5	---
433A:						
Floraville------	0-9	12-25	5.0-15.0	5.1-7.3	---	---
	9-18	10-22	5.0-10.0	4.5-7.3	---	---
	18-44	27-48	20.0-32.0	3.5-6.0	---	---
	44-70	24-55	15.0-35.0	4.5-7.8	0-5	---
	70-94	20-45	10.0-30.0	5.6-8.4	0-15	---

Table 20.—Chemical Properties of the Soils—continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	
437B:						
Redbud----------	0-9	12-25	12.0-20.0	5.1-7.3	---	---
	9-16	12-32	10.0-18.0	5.1-7.3	---	---
	16-45	22-35	20.0-30.0	4.5-6.5	---	---
	45-80	24-55	18.0-32.0	4.5-8.4	0-5	---
437C2:						
Redbud----------	0-6	12-25	12.0-20.0	5.1-7.3	---	---
	6-12	12-32	10.0-18.0	5.1-7.3	---	---
	12-40	22-35	20.0-30.0	4.5-6.5	---	---
	40-80	24-55	18.0-32.0	4.5-8.4	0-5	---
438B:						
Aviston---------	0-16	15-27	15.0-25.0	5.6-7.3	---	---
	16-67	24-35	20.0-35.0	5.1-7.3	---	---
	67-80	15-30	10.0-20.0	5.6-7.8	---	---
438C2:						
Aviston---------	0-10	15-27	15.0-25.0	5.6-7.3	---	---
	10-57	24-35	20.0-35.0	5.1-7.3	---	---
	57-80	15-30	10.0-20.0	5.6-7.8	---	---
441B:						
Wakenda---------	0-13	18-27	12.0-22.0	5.6-7.3	---	---
	13-60	25-35	20.0-30.0	5.6-7.3	---	---
	60-80	20-30	10.0-20.0	5.6-7.3	---	---
441C2:						
Wakenda---------	0-9	18-27	12.0-22.0	5.6-7.3	---	---
	9-52	25-35	20.0-30.0	5.6-7.3	---	---
	52-80	20-30	10.0-20.0	5.6-7.3	---	---
466A:						
Bartelso--------	0-12	18-28	15.0-25.0	5.6-7.3	---	---
	12-35	36-42	20.0-30.0	5.1-7.8	0-5	---
	35-62	22-42	20.0-30.0	6.1-8.4	0-20	---
	62-80	18-42	12.0-20.0	6.1-8.4	0-10	---
468A:						
Lakaskia--------	0-13	20-30	14.0-25.0	5.6-7.3	---	---
	13-26	30-42	20.0-27.0	5.6-7.8	0-5	---
	26-60	35-45	21.0-28.0	6.1-8.4	0-20	---
	60-80	25-42	15.0-25.0	6.6-8.4	0-10	---
477B:						
Winfield--------	0-9	20-27	10.0-15.0	5.6-7.3	---	---
	9-13	22-30	12.0-17.0	5.6-7.3	---	---
	13-62	24-35	13.0-18.0	4.5-6.5	---	---
	62-80	20-27	10.0-14.0	5.1-6.5	---	---
477B2, 477C2:						
Winfield--------	0-7	20-27	10.0-15.0	5.6-7.3	---	---
	7-56	24-35	13.0-18.0	4.5-6.5	---	---
	56-80	20-27	10.0-14.0	5.1-6.5	---	---
477C3:						
Winfield--------	0-5	27-30	14.0-17.0	5.6-7.3	---	---
	5-48	24-35	13.0-18.0	4.5-6.5	---	---
	48-80	20-27	10.0-14.0	5.1-6.5	---	---
491B2:						
Ruma------------	0-8	27-35	15.0-25.0	5.6-7.3	---	---
	8-56	22-35	18.0-28.0	4.5-6.5	---	---
	56-80	15-27	12.0-20.0	5.1-7.3	---	---
491C3, 491D3:						
Ruma------------	0-5	27-35	15.0-25.0	5.6-7.3	---	---
	5-48	22-35	18.0-28.0	4.5-6.5	---	---
	48-80	15-27	12.0-20.0	5.1-7.3	---	---

Table 20.—Chemical Properties of the Soils—continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	
515C2, 515C3, 515D3:						
Bunkum----------	0-8	18-35	17.0-23.0	5.1-7.3	---	---
	8-40	25-35	18.0-24.0	4.5-6.5	---	---
	40-58	18-27	12.0-22.0	5.1-7.3	---	---
	58-80	15-27	10.0-20.0	5.1-7.3	---	---
517A, 517B:						
Marine----------	0-9	10-18	9.0-15.0	5.1-7.3	---	---
	9-17	8-18	5.0-10.0	4.5-6.5	---	---
	17-34	35-48	20.0-30.0	4.5-5.5	---	---
	34-62	15-35	10.0-20.0	5.1-7.3	---	---
	62-80	12-35	6.0-16.0	5.1-7.8	---	---
582B:						
Homen-----------	0-9	18-27	15.0-25.0	5.6-7.3	---	---
	9-15	15-27	15.0-22.0	4.5-6.5	---	---
	15-58	24-35	18.0-28.0	4.5-6.0	---	---
	58-80	15-27	12.0-20.0	5.1-6.5	---	---
582B2, 582C2:						
Homen-----------	0-7	18-27	15.0-25.0	5.6-7.3	---	---
	7-50	24-35	18.0-28.0	4.5-6.0	---	---
	50-80	15-27	12.0-20.0	5.1-6.5	---	---
585F2:						
Negley----------	0-7	12-27	6.0-22.0	4.5-7.3	---	---
	7-50	18-35	7.0-21.0	4.5-6.5	---	---
	50-80	22-38	9.0-23.0	4.5-6.0	---	---
801B, 801D:						
Orthents, silty-	0-60	20-35	8.0-20.0	5.1-6.5	---	---
802B, 802D:						
Orthents, loamy-	0-6	22-30	9.0-12.0	5.6-7.3	---	---
	6-60	22-30	9.0-20.0	5.6-7.3	---	---
821G:						
Morristown------	0-6	27-35	10.0-21.0	6.1-8.4	0-20	---
	6-60	20-35	8.0-21.0	7.4-8.4	0-20	---
824B:						
Swanwick--------	0-8	27-35	16.0-22.0	5.1-7.8	---	---
	8-23	15-35	9.0-22.0	4.5-8.4	0-20	---
	23-63	27-35	16.0-22.0	4.5-8.4	0-20	---
	63-80	15-35	9.0-22.0	4.5-8.4	0-20	---
825B:						
Lenzburg, acid substratum-----	0-5	27-35	17.0-29.0	6.6-8.4	0-10	---
	5-32	20-35	8.0-21.0	6.6-8.4	0-10	---
	32-60	0-5	1.0-3.0	2.0-3.6	---	---
826D:						
Orthents, acid substratum-----	0-29	20-35	8.0-20.0	5.1-7.8	---	---
	29-60	0-5	1.0-3.0	3.5-4.4	---	---
871B, 871D, 871G:						
Lenzburg--------	0-3	27-35	17.0-29.0	6.6-8.4	0-20	---
	3-26	18-35	8.0-21.0	6.6-8.4	0-25	---
	26-60	18-35	8.0-21.0	6.6-8.4	0-25	---
871G:						
Lenzburg--------	0-3	27-35	17.0-29.0	6.6-8.4	0-20	---
	3-26	18-35	8.0-21.0	6.6-8.4	0-25	---
	26-60	18-35	8.0-21.0	6.6-8.4	0-25	---

Table 20.—Chemical Properties of the Soils—continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	
878C3:						
Coulterville----	0-5	27-35	16.0-23.0	5.1-7.8	---	0-10
	5-20	22-35	16.0-22.0	4.5-7.8	---	5-15
	20-48	18-35	11.0-22.0	7.4-8.4	0-10	5-15
	48-80	15-30	9.0-19.0	6.6-8.4	0-20	5-15
Grantfork-------	0-5	27-30	17.0-20.0	4.5-7.8	---	0-10
	5-37	20-30	12.0-18.0	5.1-9.0	0-20	5-15
	37-80	20-48	12.0-18.0	7.4-9.0	0-30	5-15
880B2:						
Coulterville----	0-7	15-27	9.0-18.0	5.6-7.8	---	0-5
	7-23	22-35	16.0-22.0	4.5-7.8	---	5-15
	23-56	18-35	11.0-22.0	7.4-8.4	0-10	5-15
	56-80	15-30	9.0-19.0	6.6-8.4	0-20	5-15
Darmstadt-------	0-7	12-27	7.0-20.0	5.1-7.3	---	0-5
	7-21	27-35	16.0-23.0	4.5-7.8	---	10-20
	21-39	20-35	16.0-23.0	6.6-9.0	0-20	10-25
	39-80	15-30	9.0-20.0	7.4-9.0	0-30	5-20
882A:						
Oconee----------	0-8	20-27	12.0-18.0	5.6-7.8	---	---
	8-16	18-27	10.0-18.0	4.5-7.3	---	---
	16-47	35-42	21.0-26.0	4.5-6.0	---	---
	47-58	20-35	12.0-21.0	5.1-6.5	---	---
	58-80	17-27	10.0-16.0	5.6-7.8	---	---
Darmstadt-------	0-11	12-27	7.0-20.0	5.1-7.3	---	0-5
	11-21	27-35	16.0-23.0	4.5-7.8	---	10-20
	21-39	20-35	16.0-23.0	6.6-9.0	0-20	10-25
	39-80	15-30	9.0-20.0	7.4-9.0	0-30	5-20
Coulterville----	0-7	15-27	9.0-18.0	5.6-7.8	---	0-5
	7-23	22-35	16.0-22.0	4.5-7.8	---	5-15
	23-56	18-35	11.0-22.0	7.4-8.4	0-10	5-15
	56-80	15-30	9.0-19.0	6.6-8.4	0-20	5-15
882B:						
Oconee----------	0-8	20-27	12.0-18.0	5.6-7.8	---	---
	8-16	18-27	10.0-18.0	4.5-7.3	---	---
	16-47	35-42	21.0-26.0	4.5-6.0	---	---
	47-58	20-35	12.0-21.0	5.1-6.5	---	---
	58-80	17-27	10.0-16.0	5.6-7.8	---	---
Coulterville----	0-7	15-27	9.0-18.0	5.6-7.8	---	0-5
	7-23	22-35	16.0-22.0	4.5-7.8	---	5-15
	23-56	18-35	11.0-22.0	7.4-8.4	0-10	5-15
	56-80	15-30	9.0-19.0	6.6-8.4	0-20	5-15
Darmstadt-------	0-11	12-27	7.0-20.0	5.1-7.3	---	0-5
	11-21	27-35	16.0-23.0	4.5-7.8	---	10-20
	21-39	20-35	16.0-23.0	6.6-9.0	0-20	10-25
	39-80	15-30	9.0-20.0	7.4-9.0	0-30	5-20
884C3:						
Bunkum----------	0-8	18-35	17.0-23.0	5.1-7.3	---	---
	8-40	25-35	18.0-24.0	4.5-6.5	---	---
	40-58	18-27	12.0-22.0	5.1-7.3	---	---
	58-80	15-27	10.0-20.0	5.1-7.3	---	---
Coulterville----	0-5	27-35	16.0-23.0	5.1-7.8	---	0-10
	5-20	22-35	16.0-22.0	4.5-7.8	---	5-15
	20-48	18-35	11.0-22.0	7.4-8.4	0-10	5-15
	48-80	15-30	9.0-19.0	6.6-8.4	0-20	5-15
885A:						
Virden----------	0-15	20-27	23.0-28.0	5.6-7.8	---	---
	15-74	35-42	21.0-27.0	5.6-7.8	---	---
	74-86	25-33	15.0-20.0	5.6-8.4	---	---

Table 20.—Chemical Properties of the Soils—continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	
Fosterburg------	0-13	20-27	20.0-27.0	6.1-7.8	---	0-5
	13-41	35-42	22.0-30.0	6.1-8.4	0-15	5-15
	41-71	24-40	20.0-28.0	6.1-8.4	0-15	5-10
	71-80	18-27	12.0-20.0	6.6-8.4	0-5	0-10
886F3:						
Ruma-----------	0-5	27-35	15.0-25.0	5.6-7.3	---	---
	5-48	22-35	18.0-28.0	4.5-6.5	---	---
	48-80	15-27	12.0-20.0	5.1-7.3	---	---
Ursa-----------	0-3	35-40	22.0-26.0	4.5-7.3	---	---
	3-68	35-45	21.0-27.0	4.5-7.3	---	---
	68-80	25-45	15.0-27.0	5.6-8.4	0-5	---
894A:						
Herrick--------	0-17	20-27	18.0-24.0	5.1-7.3	---	---
	17-43	35-42	21.0-25.0	4.5-6.0	---	---
	43-64	25-40	15.0-25.0	5.6-7.3	---	---
	64-80	20-30	12.0-18.0	5.6-8.4	---	0-5
Biddle---------	0-16	18-27	20.0-27.0	5.6-7.3	---	---
	16-36	35-42	22.0-30.0	5.6-8.4	0-5	5-15
	36-62	24-38	20.0-28.0	6.1-8.4	0-15	5-10
	62-99	18-27	12.0-20.0	6.6-8.4	0-15	0-10
Piasa----------	0-8	18-27	11.0-16.0	5.6-7.8	---	0-5
	8-12	18-27	11.0-16.0	5.6-7.8	---	0-5
	12-37	35-43	21.0-26.0	6.1-9.0	---	10-20
	37-80	20-35	12.0-21.0	6.6-9.0	---	5-20
897D3:						
Bunkum---------	0-8	18-35	17.0-23.0	5.1-7.3	---	---
	8-40	25-35	18.0-24.0	4.5-6.5	---	---
	40-58	18-27	12.0-22.0	5.1-7.3	---	---
	58-80	15-27	10.0-20.0	5.1-7.3	---	---
Atlas----------	0-9	30-40	19.0-26.0	4.5-7.3	---	---
	9-31	35-45	21.0-29.0	4.5-7.3	---	---
	31-51	30-45	18.0-29.0	4.5-7.8	---	---
	51-80	20-30	12.0-20.0	6.1-7.8	0-5	---
906C3:						
Redbud---------	0-5	27-35	16.0-22.0	5.1-7.3	---	---
	5-10	12-32	10.0-18.0	5.1-7.3	---	---
	10-40	22-35	20.0-30.0	4.5-6.5	---	---
	40-80	24-55	18.0-32.0	4.5-8.4	0-5	---
Hurst----------	0-5	27-35	17.0-22.0	4.5-7.3	---	---
	5-50	35-48	21.0-29.0	3.5-7.8	---	---
	50-80	20-45	12.0-27.0	5.1-8.4	0-5	---
907D3:						
Redbud---------	0-5	27-35	16.0-22.0	5.1-7.3	---	---
	5-10	12-32	10.0-18.0	5.1-7.3	---	---
	10-40	22-35	20.0-30.0	4.5-6.5	---	---
	40-80	24-55	18.0-32.0	4.5-8.4	0-5	---
Colp-----------	0-5	27-35	17.0-23.0	5.1-7.8	---	---
	5-70	35-50	21.0-31.0	4.5-5.0	---	---
	70-80	30-45	18.0-28.0	4.5-8.4	0-15	---
962F2, 962G:						
Sylvan---------	0-5	20-27	14.0-20.0	5.6-7.3	---	---
	5-25	25-35	15.0-22.0	5.6-7.3	---	---
	25-80	10-27	6.0-18.0	6.6-8.4	0-35	---
Bold-----------	0-12	12-18	8.0-15.0	7.4-8.4	10-40	---
	12-60	12-18	7.0-12.0	7.4-8.4	10-50	---

Table 20.—Chemical Properties of the Soils—continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	
993A:						
Cowden----------	0-8	17-27	14.0-22.0	5.6-7.3	---	---
	8-19	17-27	10.0-17.0	4.5-6.0	---	---
	19-50	35-42	21.0-27.0	4.5-7.3	---	---
	50-80	20-30	12.0-17.0	5.6-7.8	---	---
Piasa-----------	0-8	18-27	11.0-16.0	5.6-7.8	---	0-5
	8-12	18-27	11.0-16.0	5.6-7.8	---	0-5
	12-37	35-43	21.0-26.0	6.1-9.0	---	10-20
	37-80	20-35	12.0-21.0	6.6-9.0	---	5-20
1071A:						
Darwin, undrained------	0-20	40-45	32.0-37.0	6.1-7.8	---	---
	20-64	45-60	27.0-40.0	6.1-7.8	---	---
	64-80	30-55	18.0-34.0	6.6-8.4	0-15	---
1248A:						
McFain, undrained------	0-13	40-45	25.0-35.0	6.1-7.8	---	---
	13-20	40-45	25.0-35.0	6.1-7.8	---	---
	20-52	10-20	6.0-12.0	6.6-8.4	0-25	---
	52-80	15-30	9.0-18.0	7.9-8.4	10-25	---
1288A:						
Petrolia, undrained------	0-8	27-35	20.0-25.0	5.6-8.4	---	---
	8-54	27-35	15.0-20.0	6.1-7.3	---	---
	54-80	20-35	10.0-20.0	4.5-7.8	---	---
2071L:						
Urban land------	---	---	---	---	---	---
Darwin----------	0-16	40-45	32.0-37.0	6.1-7.8	---	---
	16-62	45-60	27.0-40.0	6.1-7.8	---	---
	62-80	30-55	18.0-34.0	6.6-8.4	0-15	---
2079D, 2079E:						
Urban land------	---	---	---	---	---	---
Menfro----------	0-9	18-27	10.0-16.0	5.1-7.3	---	---
	9-52	27-33	15.0-20.0	5.1-7.3	---	---
	52-80	8-20	5.0-10.0	5.1-7.3	---	---
2183A:						
Urban land------	---	---	---	---	---	---
Shaffton--------	0-10	27-30	25.0-30.0	5.1-7.3	---	---
	10-33	18-26	20.0-25.0	4.5-6.0	---	---
	33-43	8-16	10.0-15.0	4.5-6.0	---	---
	43-60	28-32	25.0-30.0	5.1-6.5	---	---
2384B:						
Urban land------	---	---	---	---	---	---
Edwardsville----	0-15	20-30	20.0-30.0	5.6-7.3	---	---
	15-57	20-35	20.0-30.0	5.1-7.8	---	---
	57-80	18-25	12.0-20.0	5.6-7.8	0-15	---
2477B:						
Urban land------	---	---	---	---	---	---
Winfield--------	0-9	20-27	10.0-15.0	5.6-7.3	---	---
	9-13	22-30	12.0-17.0	5.6-7.3	---	---
	13-62	24-35	13.0-18.0	4.5-6.5	---	---
	62-80	20-27	10.0-14.0	5.1-6.5	---	---

Table 20.—Chemical Properties of the Soils—continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	
3038B:						
Rocher	0-5	10-18	7.0-12.0	6.6-8.4	0-20	---
	5-53	5-18	4.0-12.0	7.4-8.4	5-30	---
	53-62	2-15	2.0-10.0	6.6-8.4	5-30	---
3070L:						
Beaucoup	0-16	27-35	26.0-33.0	5.6-7.8	---	---
	16-64	27-35	16.0-25.0	5.6-7.8	---	---
	64-80	10-30	6.0-20.0	6.1-8.4	0-5	---
3076A:						
Otter	0-37	18-27	16.0-36.0	6.1-7.8	---	---
	37-55	18-27	12.0-22.0	6.1-7.8	---	---
	55-80	15-28	10.0-21.0	6.1-8.4	---	---
3083L:						
Wabash	0-10	40-55	22.0-32.0	5.1-7.3	---	---
	10-80	40-55	20.0-30.0	5.1-7.8	---	---
3180A:						
Dupo	0-9	10-18	8.0-15.0	5.6-8.4	---	---
	9-25	10-18	6.0-12.0	5.6-8.4	---	---
	25-80	35-45	21.0-29.0	6.6-7.8	0-5	---
3288L:						
Petrolia	0-8	27-35	20.0-25.0	5.6-8.4	---	---
	8-55	27-35	15.0-20.0	6.1-7.3	---	---
	55-80	20-35	10.0-20.0	4.5-7.8	---	---
3333A:						
Wakeland	0-7	10-18	4.0-12.0	5.6-7.3	---	---
	7-29	10-18	4.0-12.0	5.6-7.8	---	---
	29-80	10-18	4.0-12.0	5.6-7.8	---	---
3334L:						
Birds	0-8	15-25	11.0-21.0	5.6-7.8	---	---
	8-80	18-27	11.0-20.0	5.1-7.8	---	---
3336A:						
Wilbur	0-7	10-18	4.0-16.0	5.6-7.3	---	---
	7-32	10-18	4.0-15.0	5.6-7.8	---	---
	32-60	10-26	4.0-16.0	5.6-7.8	---	---
3391A:						
Blake	0-6	27-38	25.0-35.0	7.4-8.4	0-20	---
	6-33	22-35	20.0-30.0	7.4-8.4	5-30	---
	33-60	10-20	10.0-20.0	7.4-8.4	5-30	---
3394A, 3394B:						
Haynie	0-8	15-25	10.0-15.0	7.4-8.4	0-20	---
	8-60	15-18	9.0-12.0	7.4-8.4	5-30	---
3415A:						
Orion	0-7	10-18	7.0-20.0	5.6-7.8	---	---
	7-35	10-18	7.0-20.0	5.6-7.8	---	---
	35-54	10-30	10.0-35.0	5.6-7.8	---	---
	54-66	10-18	5.0-15.0	5.6-7.8	---	---
3428A:						
Coffeen	0-10	15-27	13.0-22.0	5.6-7.8	---	---
	10-47	10-18	6.0-15.0	5.6-7.3	---	---
	47-60	5-15	3.0-13.0	5.6-7.3	---	---
3847L:						
Fluvaquents	0-10	12-24	8.0-23.0	5.6-7.3	---	---
	10-60	5-24	2.0-19.0	5.6-7.8	0-25	---
Orthents	0-6	22-30	9.0-12.0	5.6-7.3	---	---
	6-60	22-30	9.0-12.0	5.6-7.3	---	---

Table 20.—Chemical Properties of the Soils—continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	
5079C, 5079D:						
Menfro, karst---	0-5	18-27	10.0-16.0	5.1-7.3	---	---
	5-50	27-33	15.0-20.0	5.1-7.3	---	---
	50-80	8-20	5.0-10.0	5.1-7.3	---	---
5079G:						
Menfro, karst---	0-9	18-27	10.0-16.0	5.1-7.3	---	---
	9-52	27-33	15.0-20.0	5.1-7.3	---	---
	52-80	8-20	5.0-10.0	5.1-7.3	---	---
8026A:						
Wagner----------	0-9	20-25	16.0-21.0	5.1-8.4	---	---
	9-17	18-25	11.0-16.0	5.1-8.4	---	---
	17-67	35-47	21.0-30.0	4.5-7.3	0-5	---
	67-80	35-40	21.0-25.0	6.6-8.4	0-15	---
8070A:						
Beaucoup--------	0-16	27-35	26.0-33.0	5.6-7.8	---	---
	16-64	27-35	16.0-25.0	5.6-7.8	0-5	---
	64-80	10-30	6.0-20.0	6.1-8.4	0-15	---
8071L:						
Darwin----------	0-16	40-45	32.0-37.0	6.1-7.8	---	---
	16-62	45-60	27.0-40.0	6.1-7.8	---	---
	62-80	30-55	18.0-34.0	6.6-8.4	0-15	---
8084A:						
Okaw------------	0-7	15-27	10.0-20.0	4.5-7.3	---	---
	7-15	12-30	10.0-15.0	4.5-6.5	---	---
	15-54	35-60	24.0-36.0	3.6-7.3	0-5	---
	54-80	35-55	21.0-35.0	4.5-8.4	0-15	---
8109A:						
Racoon----------	0-6	20-27	14.0-20.0	4.5-7.3	---	---
	6-30	18-25	11.0-16.0	4.5-7.3	---	---
	30-59	24-38	15.0-23.0	4.5-5.5	---	---
	59-73	18-30	12.0-20.0	5.6-7.3	---	---
8122C, 8122D:						
Colp------------	0-5	27-35	17.0-23.0	5.1-7.3	---	---
	5-70	35-50	21.0-31.0	4.5-7.8	0-5	---
	70-80	30-45	18.0-28.0	4.5-8.4	0-15	---
8131B:						
Alvin-----------	0-9	8-15	4.0-11.0	4.5-7.3	---	---
	9-47	15-18	7.0-8.0	4.5-6.0	---	---
	47-80	3-10	2.0-3.0	5.1-8.4	---	---
8162A:						
Gorham----------	0-14	27-42	24.0-35.0	5.1-7.8	---	---
	14-36	27-42	16.0-26.0	6.1-7.8	---	---
	36-62	22-30	13.0-19.0	6.1-7.8	---	---
	62-80	5-15	3.0-10.0	6.1-7.8	0-10	---
8180A:						
Dupo------------	0-9	10-18	8.0-15.0	5.6-8.4	---	---
	9-25	10-18	6.0-12.0	5.6-8.4	---	---
	25-80	35-45	21.0-29.0	6.6-7.8	0-5	---
8183A:						
Shaffton--------	0-12	27-30	25.0-30.0	5.1-7.3	---	---
	12-24	18-26	20.0-25.0	4.5-6.0	---	---
	24-66	8-16	10.0-15.0	4.5-6.0	---	---
	66-80	2-6	5.0-10.0	6.1-7.3	---	---
8284A:						
Tice------------	0-16	27-35	20.0-27.0	6.1-7.8	---	---
	16-72	24-35	16.0-23.0	5.1-7.3	---	---
	72-80	10-30	9.0-20.0	5.1-7.8	0-5	---

Table 20.—Chemical Properties of the Soils—continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	
8304B:						
Landes----------	0-14	7-20	6.0-16.0	5.6-8.4	---	---
	14-39	5-18	3.0-15.0	5.6-8.4	0-10	---
	39-80	5-18	3.0-15.0	5.6-8.4	0-20	---
8338A:						
Hurst-----------	0-7	20-27	14.0-20.0	5.1-7.3	---	---
	7-12	18-30	11.0-19.0	3.5-6.0	---	---
	12-62	35-48	21.0-29.0	3.5-7.8	0-5	---
	62-80	20-45	12.0-27.0	5.1-8.4	0-15	---
8338B:						
Hurst-----------	0-6	20-27	14.0-20.0	5.1-7.3	---	---
	6-10	18-30	11.0-19.0	3.5-6.0	---	---
	10-56	35-48	21.0-29.0	3.5-7.8	0-5	---
	56-80	20-45	12.0-27.0	5.1-8.4	0-15	---
8338C:						
Hurst-----------	0-5	27-35	17.0-22.0	4.5-7.3	---	---
	5-50	35-48	21.0-29.0	3.5-7.8	0-5	---
	50-80	20-45	12.0-27.0	5.1-8.4	0-15	---
8394A:						
Haynie----------	0-8	15-25	10.0-15.0	7.4-8.4	0-20	---
	8-60	15-18	9.0-12.0	7.4-8.4	5-30	---
8432A:						
Geff------------	0-5	18-27	13.0-22.0	5.6-7.3	---	---
	5-12	18-27	12.0-18.0	4.5-7.3	---	---
	12-33	24-35	14.0-21.0	4.5-6.0	---	---
	33-62	15-30	9.0-18.0	4.5-7.3	---	---
	62-80	1-5	1.0-3.0	5.1-7.3	---	---
8434B:						
Ridgway---------	0-8	14-27	10.0-20.0	5.1-7.3	---	---
	8-27	22-35	18.0-25.0	4.5-7.3	---	---
	27-52	10-30	8.0-22.0	4.5-6.5	---	---
	52-80	2-10	2.0-10.0	5.6-7.3	---	---
8436B:						
Meadowbank------	0-17	15-27	14.0-26.0	5.1-7.3	---	---
	17-34	27-35	22.0-29.0	5.1-7.3	---	---
	34-53	10-30	12.0-20.0	4.5-7.3	---	---
	53-80	2-10	2.0-8.0	5.1-7.3	---	---
8489A:						
Hurst, sandy substratum-----	0-10	20-27	14.0-20.0	4.5-5.5	---	---
	10-40	35-48	21.0-29.0	4.5-7.3	---	---
	40-60	2-15	1.0-9.0	4.5-7.3	---	---
8524L:						
Zipp------------	0-8	40-50	18.0-36.0	5.6-7.3	---	---
	8-51	40-55	16.0-35.0	5.6-7.3	---	---
	51-80	40-55	16.0-35.0	6.6-7.8	0-15	---
8591A:						
Fults-----------	0-12	40-60	30.0-44.0	5.6-7.8	---	---
	12-32	35-60	21.0-38.0	5.6-7.8	---	---
	32-42	10-35	6.0-20.0	5.6-7.8	---	---
	42-80	3-20	1.0-12.0	5.6-7.8	0-10	---
8592A:						
Nameoki---------	0-12	40-60	28.0-44.0	5.6-7.8	---	---
	12-28	35-60	21.0-38.0	5.6-7.8	---	---
	28-54	15-35	9.0-22.0	5.6-7.8	0-5	---
	54-80	5-30	3.0-19.0	5.6-7.8	0-10	---

Table 20.—Chemical Properties of the Soils—continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	
8646A:						
Fluvaquents, loamy----------	0-10	12-24	8.0-23.0	5.6-7.3	---	---
	10-60	5-24	2.0-19.0	5.6-7.8	0-25	---
8812F:						
Typic Hapludalfs	0-8	15-27	10.0-20.0	5.1-7.3	---	---
	8-60	10-40	10.0-25.0	4.5-7.8	0-20	---

Table 21.—Water Features

("Flooding" and "water table" and terms such as "occasional," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Hydro-logic group	Flooding			High water table and ponding			
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Maximum ponding depth
					Ft			Ft
5C2, 5C3, 5D3:								
Blair	C	None	---	---	1.0-2.0	Apparent	Dec-Apr	---
8F2:								
Hickory	B	None	---	---	>6.0	---	---	---
31A:								
Pierron	D	None	---	---	0.0-1.0	Perched	Dec-Apr	0.5
37A, 37B:								
Worthen	B	None	---	---	>6.0	---	---	---
46A:								
Herrick	B	None	---	---	1.0-2.0	Apparent	Dec-Apr	---
50A:								
Virden	B	None	---	---	0.0-1.0	Apparent	Dec-Apr	0.5
75B:								
Drury	B	None	---	---	>6.0	---	---	---
79B, 79C2, 79C3, 79D2, 79D3, 79F, 79F3, 79G:								
Menfro	B	None	---	---	>6.0	---	---	---
81A:								
Littleton	B	None	---	---	1.0-2.0	Apparent	Dec-Apr	---
90A:								
Bethalto	B	None	---	---	0.5-2.0	Apparent	Dec-Apr	---
109A:								
Racoon	C	None	---	---	0.0-1.0	Apparent	Dec-Apr	0.5
112A:								
Cowden	D	None	---	---	0.0-1.0	Perched	Dec-Apr	0.5
113A, 113B:								
Oconee	C	None	---	---	0.5-2.0	Apparent	Dec-Apr	---
267A, 267B:								
Caseyville	B	None	---	---	0.5-2.0	Apparent	Dec-Apr	---
283B, 283C2:								
Downsouth	B	None	---	---	2.0-3.5	Apparent	Dec-Apr	---
384A, 384B:								
Edwardsville	B	None	---	---	1.0-2.0	Apparent	Dec-Apr	---
385A:								
Mascoutah	B	None	---	---	0.0-1.0	Apparent	Dec-Apr	0.5
423A, 423B:								
Millstadt	C	None	---	---	0.5-2.0	Perched	Dec-Apr	---
433A:								
Floraville	D	None	---	---	0.0-1.0	Perched	Dec-Apr	0.5
437B, 437C2:								
Redbud	C	None	---	---	2.0-3.5	Perched	Dec-Apr	---
438B, 438C2:								
Aviston	B	None	---	---	2.0-3.5	Apparent	Dec-Apr	---

Table 21.--Water Features--continued

Map symbol and soil name	Hydro-logic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	High water table and ponding: Water table depth	High water table and ponding: Kind of water table	High water table and ponding: Months	High water table and ponding: Maximum ponding depth
					Ft			Ft
441B, 441C2: Wakenda----------	B	None-------	---	---	4.0-6.0	Apparent	Dec-Apr	---
466A: Bartelso---------	D	None-------	---	---	1.0-2.0	Perched	Dec-Apr	---
468A: Lakaskia---------	D	None-------	---	---	0.0-1.0	Perched	Dec-Apr	0.5
477B, 477B2, 477C2, 477C3: Winfield---------	B	None-------	---	---	2.0-3.5	Apparent	Dec-Apr	---
491B2, 491C3, 491D3: Ruma-------------	B	None-------	---	---	4.0-6.0	Apparent	Dec-Apr	---
515C2, 515C3, 515D3: Bunkum-----------	C	None-------	---	---	1.0-2.0	Apparent	Dec-Apr	---
517A, 517B: Marine-----------	C	None-------	---	---	0.5-2.0	Perched	Dec-Apr	---
582B, 582B2, 582C2: Homen------------	B	None-------	---	---	2.0-3.5	Perched	Dec-Apr	---
585F2: Negley-----------	B	None-------	---	---	4.0-6.0	Apparent	Jan-Apr	---
801B, 801D: Orthents, silty-	C	None-------	---	---	1.0-3.5	Apparent	Dec-Apr	---
802B, 802D: Orthents, loamy-	B	None-------	---	---	3.5-6.0	Apparent	Dec-Apr	---
821G: Morristown------	C	None-------	---	---	>6.0	---	---	---
824B: Swanwick---------	D	None-------	---	---	3.5-5.0	Perched	Dec-Apr	---
825B: Lenzburg, Acid Substratum-----	B	None-------	---	---	>6.0	---	---	---
826D: Orthents, Acid Substratum-----	C	None-------	---	---	0.5-2.0	Apparent	Nov-May	---
871B, 871D, 871G: Lenzburg---------	B	None-------	---	---	>6.0	---	---	---
878C3: Coulterville----	D	None-------	---	---	0.5-2.0	Perched	Dec-Apr	---
Grantfork--------	D	None-------	---	---	0.5-2.0	Perched	Dec-Apr	---
880B2: Coulterville----	D	None-------	---	---	0.5-2.0	Perched	Dec-Apr	---
Darmstadt-------	D	None-------	---	---	0.5-2.0	Perched	Dec-Apr	---

Table 21.--Water Features--continued

Map symbol and soil name	Hydro-logic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	High water table and ponding: Water table depth	Kind of water table	Months	Maximum ponding depth
					Ft			Ft
882A:								
Oconee	C	None	---	---	0.5-2.0	Apparent	Dec-Apr	---
Darmstadt	D	None	---	---	0.5-2.0	Perched	Dec-Apr	---
Coulterville	D	None	---	---	0.5-2.0	Perched	Dec-Apr	---
882B:								
Oconee	C	None	---	---	0.5-2.0	Apparent	Dec-Apr	---
Coulterville	D	None	---	---	0.5-2.0	Perched	Dec-Apr	---
Darmstadt	D	None	---	---	0.5-2.0	Perched	Dec-Apr	---
884C3:								
Bunkum	C	None	---	---	1.0-2.0	Apparent	Dec-Apr	---
Coulterville	D	None	---	---	0.5-2.0	Perched	Dec-Apr	---
885A:								
Virden	C	None	---	---	0.0-1.0	Apparent	Dec-Apr	0.5
Fosterburg	D	None	---	---	0.0-1.0	Apparent	Dec-Apr	0.5
886F3:								
Ruma	B	None	---	---	4.0-6.0	Apparent	Dec-Apr	---
Ursa	C	None	---	---	4.0-6.0	Perched	Dec-Apr	---
894A:								
Herrick	B	None	---	---	1.0-2.0	Apparent	Dec-Apr	---
Biddle	C	None	---	---	1.0-2.0	Perched	Dec-Apr	---
Piasa	D	None	---	---	0.0-1.0	Perched	Dec-Apr	0.5
897D3:								
Bunkum	C	None	---	---	1.0-2.0	Apparent	Dec-Apr	---
Atlas	D	None	---	---	0.5-1.5	Perched	Dec-Apr	---
906C3:								
Redbud	C	None	---	---	2.0-3.5	Perched	Dec-Apr	---
Hurst	D	None	---	---	1.0-2.0	Perched	Dec-Apr	---
907D3:								
Redbud	C	None	---	---	2.0-3.5	Perched	Dec-Apr	---
Colp	C	None	---	---	1.0-2.5	Perched	Dec-Apr	---
962F2, 962G:								
Sylvan	B	None	---	---	>6.0	---	---	---
Bold	B	None	---	---	>6.0	---	---	---
993A:								
Cowden	D	None	---	---	0.0-1.0	Perched	Dec-Apr	0.5
Piasa	D	None	---	---	0.0-1.0	Perched	Dec-Apr	0.5
1071A:								
Darwin, undrained	D	Frequent	Very long	Jan-Jun	0.0-0.5	Apparent	Oct-Sep	2.0
1248A:								
McFain, undrained	C	Frequent	Very long	Jan-Jun	0.0-0.5	Apparent	Oct-Sep	2.0

Table 21.-Water Features-continued

Map symbol and soil name	Hydro-logic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	High water table and ponding: Water table depth	High water table and ponding: Kind of water table	High water table and ponding: Months	High water table and ponding: Maximum ponding depth
					Ft			Ft
1288A:								
Petrolia, undrained------	D	Frequent---	Very long	Jan-Jun	0.0-0.5	Apparent	Oct-Sep	2.0
2071L:								
Darwin----------	D	Occasional-	Long------	Jan-Jun	0.0-1.0	Apparent	Nov-May	0.5
Urban land------	---	---	---	---	---	---	---	---
2079D, 2079E:								
Menfro----------	B	None-------	---	---	>6.0	---	Jan-Apr	---
Urban land------	---	---	---	---	---	---	---	---
2183A:								
Shaffton--------	B	Occasional-	Brief-----	Jan-Jun	1.0-2.0	Apparent	Dec-Apr	---
Urban land------	---	---	---	---	---	---	---	---
2384B:								
Edwardsville----	B	None-------	---	---	1.0-2.0	Apparent	Dec-Apr	---
Urban land------	---	---	---	---	---	---	---	---
2477B:								
Winfield--------	B	None-------	---	---	2.0-3.5	Apparent	Dec-Apr	---
Urban land------	---	---	---	---	---	---	---	---
3038B:								
Rocher----------	B	Frequent---	Brief-----	Jan-Jun	>6.0	---	---	---
3070L:								
Beaucoup--------	B/D	Frequent---	Long------	Jan-Jun	0.0-1.0	Apparent	Nov-May	0.5
3076A:								
Otter-----------	B/D	Frequent---	Brief-----	Jan-Jun	0.0-1.0	Apparent	Dec-Apr	0.5
3083L:								
Wabash----------	D	Frequent---	Long------	Jan-Jun	0.0-0.5	Apparent	Nov-May	2.0
3180A:								
Dupo------------	C	Frequent---	Brief-----	Jan-Jun	0.5-2.0	Apparent	Dec-Apr	---
3288L:								
Petrolia--------	C/D	Frequent---	Long------	Jan-Jun	0.0-1.0	Apparent	Nov-May	0.5
3333A:								
Wakeland--------	C	Frequent---	Brief-----	Jan-Jun	0.5-2.0	Apparent	Dec-Apr	---
3334L:								
Birds-----------	C/D	Frequent---	Long------	Jan-Jun	0.0-1.0	Apparent	Nov-May	0.5
3336A:								
Wilbur----------	B	Frequent---	Brief-----	Jan-Jun	1.5-2.0	Apparent	Dec-Apr	---
3391A:								
Blake-----------	B	Frequent---	Brief-----	Jan-Jun	0.5-2.0	Apparent	Dec-Apr	---
3394A, 3394B:								
Haynie----------	B	Frequent---	Brief-----	Jan-Jun	3.5-6.0	Apparent	Dec-Apr	---
3415A:								
Orion-----------	C	Frequent---	Brief-----	Jan-Jun	0.5-2.0	Apparent	Dec-Apr	---
3428A:								
Coffeen---------	B	Frequent---	Brief-----	Jan-Jun	1.0-2.0	Apparent	Dec-Apr	---

Table 21.—Water Features—continued

Map symbol and soil name	Hydro-logic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	High water table and ponding: Water table depth	Kind of water table	Months	Maximum ponding depth
					Ft			Ft
3847L:								
Fluvaquents	C	Frequent	Long	Jan-Dec	0.0-1.0	Apparent	Nov-May	0.5
Orthents	B	None	---	---	3.5-6.0	Apparent	Dec-Apr	---
5079C, 5097D, 5079G:								
Menfro, karst	B	None	---	---	4.0-6.0	Apparent	Jan-Apr	---
8026A:								
Wagner	D	Occasional	Brief	Feb-Jun	0.0-1.0	Perched	Dec-Apr	0.5
8070A:								
Beaucoup	B	Occasional	Brief	Jan-Jun	0.0-1.0	Apparent	Dec-Apr	0.5
8071L:								
Darwin	D	Occasional	Long	Jan-Jun	0.0-1.0	Apparent	Nov-May	0.5
8084A:								
Okaw	D	Occasional	Brief	Feb-Jun	0.0-1.0	Perched	Dec-Apr	0.5
8109A:								
Racoon	C	Occasional	Brief	Feb-Jun	0.0-1.0	Apparent	Dec-Apr	0.5
8122C, 8122D:								
Colp	C	Occasional	Brief	Feb-May	1.0-2.5	Perched	Dec-Apr	---
8131B:								
Alvin	B	Occasional	Brief	Feb-Apr	>6.0	---	---	---
8162A:								
Gorham	B	Occasional	Brief	Jan-Jun	0.0-1.0	Apparent	Dec-Apr	0.5
8180A:								
Dupo	C	Occasional	Brief	Jan-Jun	0.5-2.0	Perched	Dec-Apr	---
8183A:								
Shaffton	B	Occasional	Brief	Jan-Jun	1.0-2.0	Apparent	Dec-Apr	---
8284A:								
Tice	B	Occasional	Brief	Jan-Jun	1.0-2.0	Apparent	Dec-Apr	---
8304B:								
Landes	B	Occasional	Brief	Jan-Jun	>6.0	---	---	---
8338A, 8338B, 8338C:								
Hurst	D	Occasional	Brief	Feb-May	0.5-2.0	Perched	Dec-Apr	---
8394A:								
Haynie	B	Occasional	Brief	Jan-Jun	3.5-6.0	Apparent	Dec-Apr	---
8432A:								
Geff	C	Occasional	Brief	Feb-May	1.0-2.0	Apparent	Dec-Apr	---
8434B:								
Ridgway	B	Occasional	Brief	Feb-May	>6.0	---	---	---
8436B:								
Meadowbank	B	Occasional	Brief	Feb-May	>6.0	---	---	---
8489A:								
Hurst, sandy substratum	D	Occasional	Brief	Feb-May	0.5-2.0	Perched	Dec-Apr	---
8524L:								
Zipp	D	Occasional	Long	Jan-Jun	0.0-0.5	Apparent	Nov-May	2.0

Table 21.--Water Features--continued

Map symbol and soil name	Hydro-logic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	High water table and ponding: Water table depth	High water table and ponding: Kind of water table	High water table and ponding: Months	High water table and ponding: Maximum ponding depth
					Ft			Ft
8591A: Fults----------	D	Occasional-	Brief-----	Jan-Jun	0.0-1.0	Apparent	Dec-Apr	0.5
8592A: Nameoki---------	D	Occasional-	Brief-----	Jan-Jun	1.0-2.0	Apparent	Dec-Apr	---
8646A: Fluvaquents, loamy----------	C	Occasional-	Long------	Jan-Dec	0.0-1.0	Apparent	Nov-May	0.5
8812F: Typic Hapludalfs	B	Occasional-	Brief-----	Feb-May	>6.0	---	---	---

Table 22.–Soil Features

(The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Bedrock		Potential frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
5C2, 5C3, 5D3: Blair	>80	---	High	High	High.
8F2: Hickory	>80	---	Moderate	Moderate	Moderate.
31A: Pierron	>80	---	High	High	High.
37A, 37B: Worthen	>80	---	High	Low	Low.
46A: Herrick	>80	---	High	High	High.
50A: Virden	>80	---	High	High	Moderate.
75B: Drury	>80	---	High	Moderate	Moderate.
79B, 79C2, 79C3, 79D2, 79D3, 79F 79F3, 79G: Menfro	>80	---	High	Low	Moderate.
81A: Littleton	>80	---	High	High	Low.
90A: Bethalto	>80	---	High	High	Moderate.
109A: Racoon	>80	---	High	High	High.
112A: Cowden	>80	---	High	High	Moderate.
113A, 113B: Oconee	>80	---	High	High	High.
267A, 267B: Caseyville	>80	---	High	High	Moderate.
283B, 283C2: Downsouth	>80	---	High	Moderate	Moderate.
384A, 384B: Edwardsville	>80	---	High	High	Moderate.
385A: Mascoutah	>80	---	High	High	Low.
423A: Millstadt	>80	---	High	High	High.
423B: Millstadt	>80	---	High	High	High.
433A: Floraville	>80	---	High	High	High.
437B, 437C2: Redbud	>80	---	High	High	High.

Table 22.-Soil Features-continued

Map symbol and soil name	Bedrock		Potential frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
438B, 438C2:					
Aviston	>80	---	High	High	Moderate.
441B, 441C2:					
Wakenda	>80	---	High	Low	Moderate.
466A:					
Bartelso	>80	---	High	High	High.
468A:					
Lakaskia	>80	---	High	High	Low.
477B, 477B2, 477C2, 477C3:					
Winfield	>80	---	High	Moderate	Moderate.
491B2, 491C3, 491D3:					
Ruma	>80	---	High	High	High.
515C2, 515C3, 515D3:					
Bunkum	>80	---	High	High	High.
517A, 517B:					
Marine	>80	---	High	High	High.
582B, 582B2, 582C2:					
Homen	>80	---	High	High	High.
585F2:					
Negley	>80	---	Moderate	Low	High.
801B, 801D:					
Orthents, silty	>80	---	High	High	Moderate.
802B, 802D:					
Orthents, loamy	>80	---	Moderate	Moderate	Moderate.
821G:					
Morristown	>80	---	Moderate	Moderate	Low.
824B:					
Swanwick	>80	---	High	Moderate	High.
825B:					
Lenzburg, acid substratum	>80	---	Moderate	Moderate	Low.
826D:					
Orthents, acid substratum	>80	---	High	High	High.
871B, 871D, 871G:					
Lenzburg	>80	---	Moderate	Moderate	Low.
878C3:					
Coulterville	>80	---	High	High	High.
Grantfork	>80	---	High	High	Low.
880B2:					
Coulterville	>80	---	High	High	High.
Darmstadt	>80	---	High	High	High.

Table 22.-Soil Features-continued

Map symbol and soil name	Bedrock		Potential frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
882A:					
Oconee----------	>80	---	High-------	High-------	High.
Darmstadt------	>80	---	High-------	High-------	High.
Coulterville----	>80	---	High-------	High-------	High.
882B:					
Oconee----------	>80	---	High-------	High-------	High.
Coulterville----	>80	---	High-------	High-------	High.
Darmstadt------	>80	---	High-------	High-------	High.
884C3:					
Bunkum----------	>80	---	High-------	High-------	High.
Coulterville----	>80	---	High-------	High-------	High.
885A:					
Virden----------	>80	---	High-------	High-------	Moderate.
Fosterburg------	>80	---	High-------	High-------	Low.
886F3:					
Ruma------------	>80	---	High-------	High-------	High.
Ursa------------	>80	---	Moderate----	High-------	Moderate.
894A:					
Herrick---------	>80	---	High-------	High-------	High.
Biddle----------	>80	---	High-------	High-------	Moderate.
Piasa-----------	>80	---	High-------	High-------	Low.
897D3:					
Bunkum----------	>80	---	High-------	High-------	High.
Atlas-----------	>80	---	High-------	High-------	Moderate.
906C3:					
Redbud----------	>80	---	High-------	High-------	High.
Hurst-----------	>80	---	Moderate----	High-------	High.
907D3:					
Redbud----------	>80	---	High-------	High-------	High.
Colp------------	>80	---	High-------	High-------	High.
962F2, 962G:					
Sylvan----------	>80	---	High-------	Moderate----	Moderate.
Bold------------	>80	---	High-------	Low---------	Low.
993A:					
Cowden----------	>80	---	High-------	High-------	Moderate.
Piasa-----------	>80	---	High-------	High-------	Low.
1071A:					
Darwin, undrained-----	>80	---	Moderate----	High-------	Low.
1248A:					
McFain, undrained-----	>80	---	High-------	High-------	Low.

Table 22.—Soil Features—continued

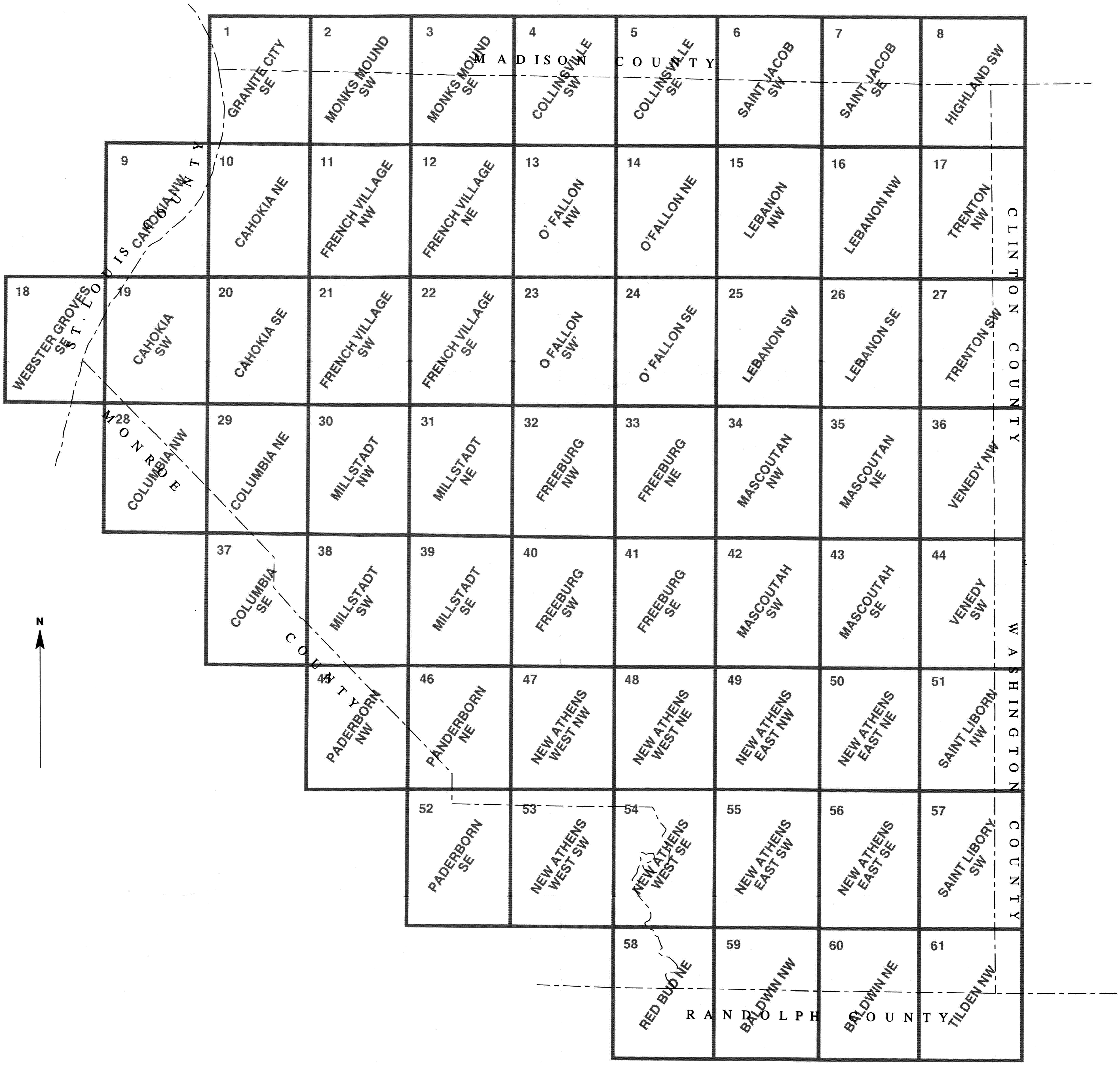
Map symbol and soil name	Bedrock		Potential frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
1288A:					
Petrolia, undrained------	>80	---	High--------	High--------	Low.
2071L:					
Darwin----------	>80	---	Moderate----	High--------	Low.
Urban land------	---	---	---	---	---
2079D, 2097E:					
Menfro----------	>80	---	High--------	Low---------	Moderate.
Urban land------	---	---	---	---	---
2183A:					
Shaffton--------	>80	---	Moderate----	High--------	High.
Urban land------	---	---	---	---	---
2384B:					
Edwardsville----	>80	---	High--------	High--------	Moderate.
Urban land------	---	---	---	---	---
2477B:					
Winfield--------	>80	---	High--------	Moderate----	Moderate.
Urban land------	---	---	---	---	---
3038B:					
Rocher----------	>80	---	Moderate----	Low---------	Low.
3070L:					
Beaucoup--------	>80	---	High--------	High--------	Low.
3076A:					
Otter-----------	>80	---	High--------	High--------	Low.
3083L:					
Wabash----------	>80	---	High--------	High--------	Moderate.
3180A:					
Dupo------------	>80	---	High--------	High--------	Moderate.
3288L:					
Petrolia--------	>80	---	High--------	High--------	Low.
3333A:					
Wakeland--------	>80	---	High--------	Moderate----	Low.
3334L:					
Birds-----------	>80	---	High--------	High--------	Moderate.
3336A:					
Wilbur----------	>80	---	High--------	Moderate----	Low.
3391A:					
Blake-----------	>80	---	High--------	High--------	Low.
3394A, 3394B:					
Haynie----------	>80	---	High--------	Low---------	Low.
3415A:					
Orion-----------	>80	---	High--------	High--------	Low.
3428A:					
Coffeen---------	>80	---	High--------	High--------	Moderate.

Table 22.–Soil Features–continued

Map symbol and soil name	Bedrock		Potential frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
3847L:					
Fluvaquents	>80	---	High	High	Moderate.
Orthents	>80	---	Moderate	Moderate	Moderate.
5079C, 5079D, 5079G:					
Menfro, karst	>80	---	High	Low	Moderate.
8026A:					
Wagner	>80	---	Moderate	High	High.
8070A:					
Beaucoup	>80	---	High	High	Low.
8071L:					
Darwin	>80	---	Moderate	High	Low.
8084A:					
Okaw	>80	---	High	High	High.
8109A:					
Racoon	>80	---	High	High	High.
8122C, 8122D:					
Colp	>80	---	High	High	High.
8131B:					
Alvin	>80	---	Moderate	Low	High.
8162A:					
Gorham	>80	---	High	High	Low.
8180A:					
Dupo	>80	---	High	High	Moderate.
8183A:					
Shaffton	>80	---	Moderate	High	High.
8284A:					
Tice	>80	---	High	High	Low.
8304B:					
Landes	>80	---	Moderate	Low	Low.
8338A, 8338B, 8338C:					
Hurst	>80	---	Moderate	High	High.
8394A:					
Haynie	>80	---	High	Low	Low.
8432A:					
Geff	>80	---	High	High	High.
8434B:					
Ridgway	>80	---	High	Moderate	Moderate.
8436B:					
Meadowbank	>80	---	High	Moderate	Moderate.
8489A:					
Hurst, sandy substratum	>80	---	Moderate	High	High.
8524L:					
Zipp	>80	---	Moderate	High	Low.
8591A:					
Fults	>80	---	High	High	Moderate.

Table 22.-Soil Features-continued

Map symbol and soil name	Bedrock		Potential frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
8592A:					
Nameoki----------	>80	---	High--------	High--------	Moderate.
8646A:					
Fluvaquents, loamy----------	>80	---	High--------	High--------	Moderate.
8812F:					
Typic Hapludalfs	>80	---	None	Moderate----	Moderate.



INDEX TO MAP SHEETS

ST. CLAIR COUNTY, ILLINOIS

Scale 1:125000

MILES

KILOMETERS

SOIL LEGEND

Map symbols consist of numbers, or a combination of numbers and letters. Two and three digit numbers represent the kind of soil. The first digit of a four digit number is a prefix that represents wetness, urban areas, flooding frequency or karst. A capital letter following those numbers indicates the class of slope, except for the letter "L", which indicates long duration flooding. Three digit symbols without a slope letter are for miscellaneous areas. A final number of 2 following the slope letter indicates that the soil is moderately eroded and a number 3 indicates that it is severely eroded.

SYMBOL	NAME	SYMBOL	NAME
5C2	Blair silt loam, 5 to 10 percent slopes, eroded	871B	Lenzburg gravelly silty clay loam, 1 to 7 percent slopes, stony
5C3	Blair silt loam, 5 to 10 percent slopes, severely eroded	871D	Lenzburg gravelly silty clay loam, 7 to 18 percent slopes, stony
5D3	Blair silt loam, 10 to 18 percent slopes, severely eroded	871G	Lenzburg gravelly silty clay loam, 18 to 70 percent slopes, stony
8F2	Hickory silt loam, 18 to 35 percent slopes, eroded	878C3	Coulterville-grantfork silty clay loams, 5 to 10 percent slopes, severely eroded
31A	Pierron silt loam, 0 to 2 percent slopes	880B2	Coulterville-darmstadt silt loams, 2 to 5 percent slopes, eroded
37A	Worthen silt loam, 0 to 2 percent slopes	882A	Oconee-darmstadt-coulterville silt loams, 0 to 2 percent slopes
37B	Worthen silt loam, 2 to 5 percent slopes	882B	Oconee-coulterville-darmstadt silt loams, 2 to 5 percent slopes
46A	Herrick silt loam, 0 to 2 percent slopes	884C3	Bunkum-coulterville silty clay loams, 5 to 10 percent slopes, severely eroded
50A	Virden silt loam, 0 to 2 percent slopes	885A	Virden-fosterburg silt loams, 0 to 2 percent slopes
75B	Drury silt loam, 2 to 5 percent slopes	886F3	Ruma-ursa silty clay loams, 18 to 35 percent slopes, severely eroded
79B	Menfro silt loam, 2 to 5 percent slopes	894A	Herrick-biddle-piasa silt loams, 0 to 2 percent slopes
79C2	Menfro silt loam, 5 to 10 percent slopes, eroded	897D3	Bunkum-atlas silty clay loams, 10 to 18 percent slopes, severely eroded
79C3	Menfro silt clay loam, 5 to 10 percent slopes, severely eroded	906C3	Redbud-hurst silty clay loams, 5 to 10 percent slopes, severely eroded
79D2	Menfro silt loam, 10 to 18 percent slopes, eroded	907D3	Redbud-colp silty clay loams, 10 to 18 percent slopes, severely eroded
79D3	Menfro silty clay loam, 10 to 18 percent slopes, severely eroded	962F2	Sylvan-bold silt loams, 18 to 35 percent slopes, eroded
79F	Menfro silt loam, 18 to 35 percent slopes	962G	Sylvan-bold silt loams, 35 to 60 percent slopes
79F3	Menfro silty clay loam, 18 to 35 percent slopes, severely eroded	993A	Cowden-piasa silt loams, 0 to 2 percent slopes
79G	Menfro silt loam, 35 to 60 percent slopes	1071A	Darwin silty clay, undrained, 0 to 2 percent slopes, frequently flooded
81A	Littleton silt loam, 0 to 2 percent slopes	1248A	Mcfain silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded
90A	Bethalto silt loam, 0 to 2 percent slopes	1288A	Petrolia silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded
109A	Racoon silt loam, 0 to 2 percent slopes	2071L	Darwin-urban land complex, 0 to 2 percent slopes, occasionally flooded, long duration
112A	Cowden silt loam, 0 to 2 percent slopes	2079D	Menfro-urban land complex, 8 to 15 percent slopes
113A	Oconee silt loam, 0 to 2 percent slopes	2079E	Menfro-urban land complex, 15 to 25 percent slopes
113B	Oconee silt loam, 2 to 5 percent slopes	2183A	Shaffton-urban land complex, 0 to 2 percent slopes, occasionally flooded
267A	Caseyville silt loam, 0 to 2 percent slopes	2384B	Edwardsville-urban land complex, 1 to 4 percent slopes
267B	Caseyville silt loam, 2 to 5 percent slopes	2477B	Winfield-urban land complex, 2 to 8 percent slopes
283B	Downsouth silt loam, 2 to 5 percent slopes	3038B	Rocher loam, 2 to 5 percent slopes, frequently flooded
283C2	Downsouth silt loam, 5 to 10 percent slopes, eroded	3070L	Beaucoup silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration
384A	Edwardsville silt loam, 0 to 2 percent slopes	3076A	Otter silt loam, 0 to 2 percent slopes, frequently flooded
384B	Edwardsville silt loam, 2 to 5 percent slopes	3083L	Wabash silty clay, 0 to 2 percent slopes, frequently flooded, long duration
385A	Mascoutah silty clay loam, 0 to 2 percent slopes	3180A	Dupo silt loam, 0 to 2 percent slopes, frequently flooded
423A	Millstadt silt loam, 0 to 2 percent slopes	3288L	Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration
423B	Millstadt silt loam, 2 to 5 percent slopes	3333A	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded
433A	Floraville silt loam, 0 to 2 percent slopes	3334L	Birds silt loam, 0 to 2 percent slopes, frequently flooded, long duration
437B	Redbud silt loam, 2 to 5 percent slopes	3336A	Wilbur silt loam, 0 to 2 percent slopes, frequently flooded
437C2	Redbud silt loam, 5 to 10 percent slopes, eroded	3391A	Blake silty clay loam, 0 to 2 percent slopes, frequently flooded
438B	Aviston silt loam, 2 to 5 percent slopes	3394A	Haynie silt loam, 0 to 2 percent slopes, frequently flooded
438C2	Aviston silt loam, 5 to 10 percent slopes, eroded	3394B	Haynie silt loam, 2 to 5 percent slopes, frequently flooded
441B	Wakenda silt loam, 2 to 5 percent slopes	3415A	Orion silt loam, 0 to 2 percent slopes, frequently flooded
441C2	Wakenda silt loam, 5 to 10 percent slopes, eroded	3428A	Coffeen silt loam, 0 to 2 percent slopes, frequently flooded
466A	Bartelso silt loam, 0 to 2 percent slopes	3847L	Fluvaquents-orthents complex, frequently flooded, long duration
468A	Lakaskia silt loam, 0 to 2 percent slopes	5079C	Menfro silt loam, karst, 4 to 12 percent slopes, severely eroded
477B	Winfield silt loam, 2 to 5 percent slopes	5079D	Menfro silt loam, karst, 12 to 25 percent slopes, severely eroded
477B2	Winfield silt loam, 2 to 5 percent slopes, eroded	5079G	Menfro silt loam, karst, 25 to 60 percent slopes
477C2	Winfield silt loam, 5 to 10 percent slopes, eroded	8026A	Wagner silt loam, 0 to 2 percent slopes, occasionally flooded
477C3	Winfield silty clay loam, 5 to 10 percent slopes, severely eroded	8070A	Beaucoup silty clay loam, 0 to 2 percent slopes, occasionally flooded
491B2	Ruma silty clay loam, 2 to 5 percent slopes, eroded	8071L	Darwin silty clay, 0 to 2 percent slopes, occasionally flooded, long duration
491C3	Ruma silty clay loam, 5 to 10 percent slopes, severely eroded	8084A	Okaw silt loam, 0 to 2 percent slopes, occasionally flooded
491D3	Ruma silty clay loam, 10 to 18 percent slopes, severely eroded	8109A	Racoon silt loam, 0 to 2 percent slopes, occasionally flooded
515C2	Bunkum silt loam, 5 to 10 percent slopes, eroded	8122C	Colp silty clay loam, 5 to 10 percent slopes, severely eroded, occasionally flooded
515C3	Bunkum silty clay loam, 5 to 10 percent slopes, severely eroded	8122D	Colp silty clay loam, 10 to 18 percent slopes, severely eroded, occasionally flooded
515D3	Bunkum silty clay loam, 10 to 18 percent slopes, severely eroded	8131B	Alvin fine sandy loam, 2 to 5 percent slopes, occasionally flooded
517A	Marine silt loam, 0 to 2 percent slopes	8162A	Gorham silty clay loam, 0 to 2 percent slopes, occasionally flooded
517B	Marine silt loam, 2 to 5 percent slopes	8180A	Dupo silt loam, 0 to 2 percent slopes, occasionally flooded
533	Urban land	8183A	Shaffton clay loam, 0 to 2 percent slopes, occasionally flooded
536	Dumps	8284A	Tice silty clay loam, 0 to 2 percent slopes, occasionally flooded
582B	Homen silt loam, 2 to 5 percent slopes	8304B	Landes very fine sandy loam, 2 to 5 percent slopes, occasionally flooded
582B2	Homen silt loam, 2 to 5 percent slopes, eroded	8338A	Hurst silt loam, 0 to 2 percent slopes, occasionally flooded
582C2	Homen silt loam, 5 to 10 percent slopes, eroded	8338B	Hurst silt loam, 2 to 5 percent slopes, eroded, occasionally flooded
585F2	Negley loam, 18 to 35 percent slopes, eroded	8338C	Hurst silty clay loam, 5 to 10 percent slopes, eroded, occasionally flooded
801B	Orthents, silty, undulating	8394A	Haynie silt loam, 0 to 2 percent slopes, occasionally flooded
801D	Orthents, silty, steep	8432A	Geff silt loam, 0 to 2 percent slopes, occasionally flooded
802B	Orthents, loamy, undulating	8434B	Ridgway silt loam, 2 to 5 percent slopes, occasionally flooded
802D	Orthents, loamy, steep	8436B	Meadowbank silt loam, 2 to 5 percent slopes, occasionally flooded
821G	Morristown very stony silty clay loam, 35 to 70 percent slopes	8489A	Hurst silt loam, sandy substratum, 0 to 2 percent slopes, occasionally flooded
824B	Swanwick silty clay loam, 1 to 5 percent slopes	8524L	Zipp silty clay, 0 to 2 percent slopes, occasionally flooded, long duration
825B	Lenzburg silty clay loam, acid substratum, 1 to 7 percent slopes	8591A	Fults silty clay, 0 to 2 percent slopes, occasionally flooded
826D	Orthents, silty, acid substratum, rolling	8592A	Nameoki silty clay, 0 to 2 percent slopes, occasionally flooded
864	Pits, quarries	8646A	Fluvaquents, loamy, 0 to 2 percent slopes, occasionally flooded
865	Pits, gravel	8812F	Typic hapludalfs, 18 to 35 percent slopes, occasionally flooded
866	Dumps, slurry	W	Water

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state, or province
- County or parish
- Field sheet matchline and neatline

AD HOC BOUNDARY (label) — Davis Airstrip

- Small airport, airfield, park, oilfield, cemetery, or flood pool — FLOOD POOL LINE

LAND DIVISION CORNER (sections and land grants)

ROAD EMBLEM & DESIGNATIONS

- Interstate — 173
- Federal — 287
- State — 52

LEVEES

- Single side slope (showing actual feature location)

PITS

- Mine or quarry

MISCELLANEOUS CULTURAL FEATURES

- Church
- School

WATER FEATURES

DRAINAGE

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end

DRAINAGE AND IRRIGATION

- Double-line canal (label) — CANAL
- Perennial drainage and/or irrigation ditch
- Intermittent drainage and/or irrigation ditch

MISCELLANEOUS WATER FEATURES

- Marsh or swamp

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS — 31A 517A

ESCARPMENTS

- Bedrock (points down slope) — v v v v v v v
- Other than bedrock (points down slope)

SHORT STEEP SLOPE

MISCELLANEOUS

- Gravelly spot
- Rock outcrop (includes sandstone and shale) — v
- Sandy spot
- Severely eroded spot
- Spoil area
- Disturbed soil spot
- Mine sink

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 GRANITE CITY NW
2 GRANITE CITY NE
3 MONKS MOUND NW
4 GRANITE CITY SW
5 MONKS MOUND SW
6 CAHOKIA NW
7 CAHOKIA NE
8 FRENCH VILLAGE NW

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GRANITE CITY SE, ILLINOIS
3.75 MINUTE SERIES
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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
MONKS MOUND SW QUADRANGLE
SHEET NUMBER 2 OF 61

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NORTH

SCALE 1:12000

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MILES

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FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

MONKS MOUND SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 2 OF 61

1	2	3
4		5
6	7	8

1 GRANITE CITY NE
2 MONKS MOUND NW
3 MONKS MOUND NE
4 GRANITE CITY SE
5 MONKS MOUND SE
6 CAHOKIA NE
7 FRENCH VILLAGE NW
8 FRENCH VILLAGE NE

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NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 MONKS MOUND NW
2 MONKS MOUND NE
3 COLLINSVILLE NW
4 MONKS MOUND SW
5 COLLINSVILLE SW
6 FRENCH VILLAGE NW
7 FRENCH VILLAGE NE
8 O'FALLON NW

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
COLLINSVILLE SW QUADRANGLE
SHEET NUMBER 4 OF 61

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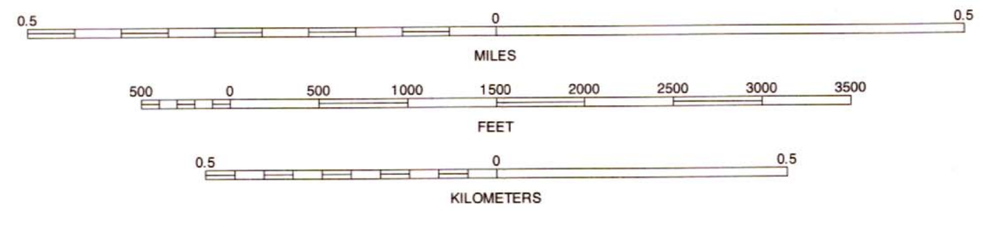
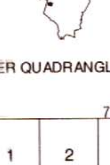
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

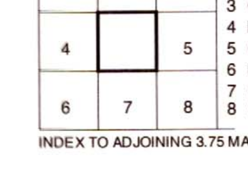
NORTH

SCALE 1:12000





QUARTER QUADRANGLE LOCATION



1 MONKS MOUND NE
2 COLLINSVILLE NW
3 COLLINSVILLE NE
4 MONKS MOUND SE
5 COLLINSVILLE SE
6 FRENCH VILLAGE NE
7 O'FALLON NW
8 O'FALLON NE

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COLLINSVILLE SW, ILLINOIS
3.75 MINUTE SERIES
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COLLINSVILLE SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 5 OF 61
July 13, 1999

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
SAINT JACOB SW QUADRANGLE
SHEET NUMBER 6 OF 61

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NORTH

SCALE 1:12000

MILES

FEET

KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 COLLINSVILLE NE
2 SAINT JACOB NW
3 SAINT JACOB NE
4 COLLINSVILLE SE
5 SAINT JACOB SE
6 O'FALLON NE
7 LEBANON NW
8 LEBANON NE

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SAINT JACOB SW, ILLINOIS
3.75 MINUTE SERIES
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UNITED STATES
DEPARTMENT OF AGRICULTURE
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ST. CLAIR COUNTY, ILLINOIS
SAINT JACOB SE QUADRANGLE
SHEET NUMBER 7 OF 61

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NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 SAINT JACOB NW
2 SAINT JACOB NE
3 HIGHLAND NW
4 SAINT JACOB SW
5 HIGHLAND SW
6 LEBANON NW
7 LEBANON NE
8 TRENTON NW

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SAINT JACOB SE, ILLINOIS
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ST. CLAIR COUNTY, ILLINOIS
HIGHLAND SW QUADRANGLE
SHEET NUMBER 8 OF 61

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

MILES

FEET

KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 SAINT JACOB NE
2 HIGHLAND NW
3 HIGHLAND NE
4 SAINT JACOB SE
5 HIGHLAND SE
6 LEBANON NE
7 TRENTON NW
8 TRENTON NE

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HIGHLAND SW, ILLINOIS
3.75 MINUTE SERIES
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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 CLAYTON SE
2 GRANITE CITY SW
3 GRANITE CITY SE
4 WEBSTER GROVES NE
5 CAHOKIA NE
6 WEBSTER GROVES SE
7 CAHOKIA SW
8 CAHOKIA SE

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CAHOKIA NW, ILLINOIS
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SHEET NUMBER 9 OF 61

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

CAHOKIA NE, ILLINOIS
3.75 MINUTE SERIES
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1	2	3
4		5
6	7	8

1 GRANITE CITY SW
2 GRANITE CITY SE
3 MONKS MOUND SW
4 CAHOKIA NW
5 FRENCH VILLAGE NW
6 CAHOKIA SW
7 CAHOKIA SE
8 FRENCH VILLAGE SW

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
FRENCH VILLAGE NW QUADRANGLE
SHEET NUMBER 11 OF 61

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 GRANITE CITY SE
2 MONKS MOUND SW
3 MONKS MOUND SE
4 CAHOKIA NE
5 FRENCH VILLAGE NE
6 CAHOKIA SE
7 FRENCH VILLAGE SW
8 FRENCH VILLAGE SE

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FRENCH VILLAGE NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 11 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 MONKS MOUND SW
2 MONKS MOUND SE
3 COLLINSVILLE SW
4 FRENCH VILLAGE NW
5 O'FALLON NW
6 FRENCH VILLAGE SW
7 FRENCH VILLAGE SE
8 O'FALLON SW

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FRENCH VILLAGE NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 12 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
O'FALLON NW QUADRANGLE
SHEET NUMBER 13 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 MONKS MOUND SE
2 COLLINSVILLE SW
3 COLLINSVILLE SE
4 FRENCH VILLAGE NE
5 O'FALLON NE
6 FRENCH VILLAGE SE
7 O'FALLON SW
8 O'FALLON SE

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O'FALLON NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 13 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
O'FALLON NE QUADRANGLE
SHEET NUMBER 14 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 COLLINSVILLE SW
2 COLLINSVILLE SE
3 SAINT JACOB SW
4 O'FALLON NW
5 LEBANON NW
6 O'FALLON SW
7 O'FALLON SE
8 LEBANON SW

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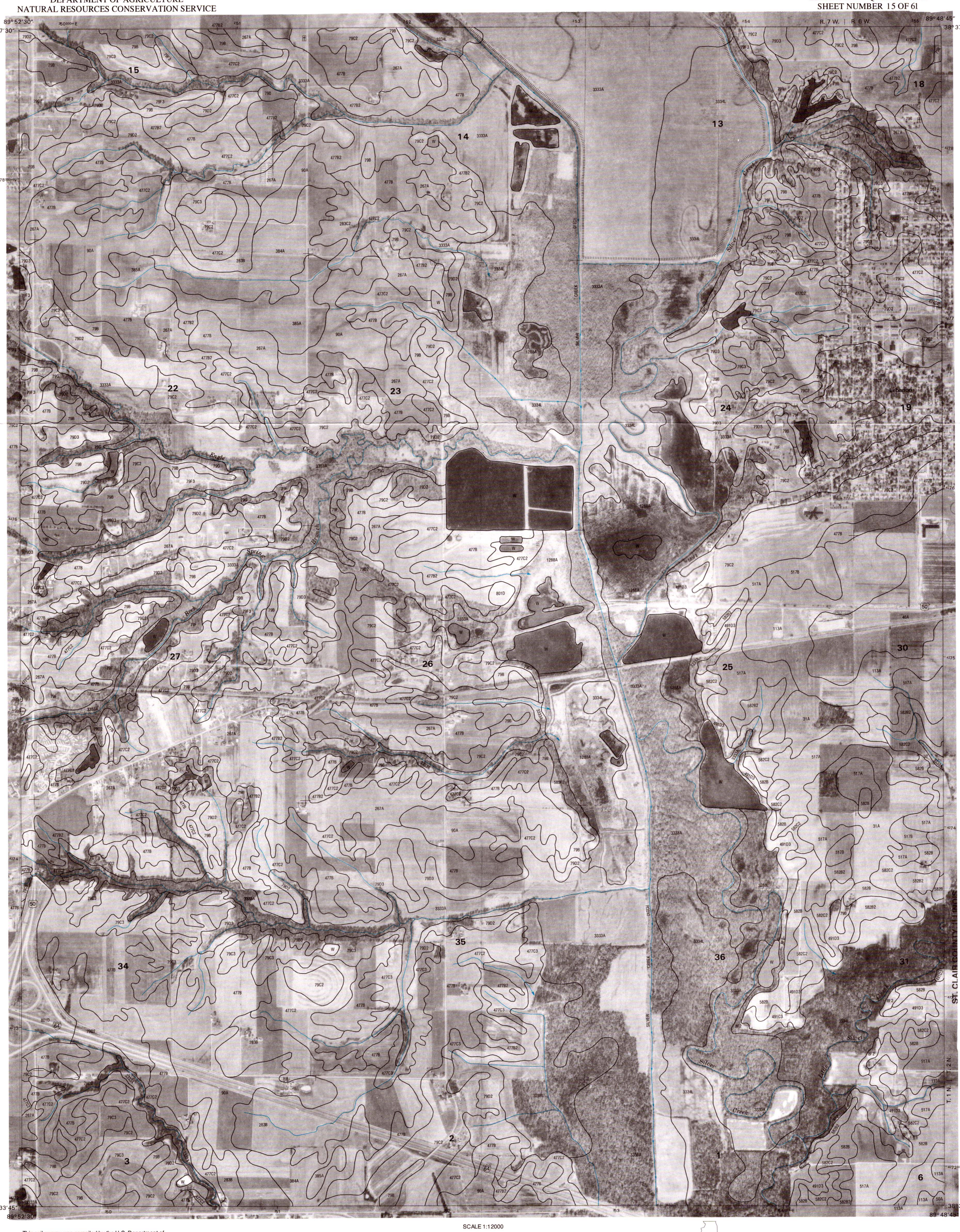
O'FALLON NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 14 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
LEBANON NW QUADRANGLE
SHEET NUMBER 15 OF 61



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 COLLINSVILLE SE
2 SAINT JACOB SW
3 SAINT JACOB SE
4 O'FALLON NE
5 LEBANON NE
6 O'FALLON SE
7 LEBANON SW
8 LEBANON SE

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LEBANON NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 15 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
LEBANON NE QUADRANGLE
SHEET NUMBER 16 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 SAINT JACOB SW
2 SAINT JACOB SE
3 HIGHLAND SW
4 LEBANON NW
5 TRENTON NW
6 LEBANON SW
7 LEBANON SE
8 TRENTON SW

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LEBANON NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 16 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
TRENTON NW QUADRANGLE
SHEET NUMBER 17 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 SAINT JACOB SE
2 HIGHLAND SW
3 HIGHLAND SE
4 LEBANON NE
5 TRENTON NE
6 LEBANON SE
7 TRENTON SW
8 TRENTON SE

INDEX TO ADJOINING 3.75 MAPS

TRENTON NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 17 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
WEBSTER GROVES SE QUADRANGLE
SHEET NUMBER 18 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 WEBSTER GROVES NW
2 WEBSTER GROVES NE
3 CAHOKIA NW
4 WEBSTER GROVES SW
5 CAHOKIA SW
6 OAKVILLE NW
7 OAKVILLE NE
8 COLUMBIA NW

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WEBSTER GROVES SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 18 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
CAHOKIA SW QUADRANGLE
SHEET NUMBER 19 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 WEBSTER GROVES NE
2 CAHOKIA NW
3 CAHOKIA NE
4 WEBSTER GROVES SE
5 CAHOKIA SE
6 OAKVILLE NE
7 COLUMBIA NW
8 COLUMBIA NE

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CAHOKIA SW, ILLINOIS
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SHEET NUMBER 19 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
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This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

CAHOKIA SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 20 OF 61

1	2	3
4		5
6	7	8

1 CAHOKIA NW
2 CAHOKIA NE
3 FRENCH VILLAGE NW
4 CAHOKIA SW
5 FRENCH VILLAGE SW
6 COLUMBIA NW
7 COLUMBIA NE
8 MILLSTADT NW

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DEPARTMENT OF AGRICULTURE
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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 CAHOKIA NE
2 FRENCH VILLAGE NW
3 FRENCH VILLAGE NE
4 CAHOKIA SE
5 FRENCH VILLAGE SE
6 COLUMBIA NE
7 MILLSTADT NW
8 MILLSTADT NE

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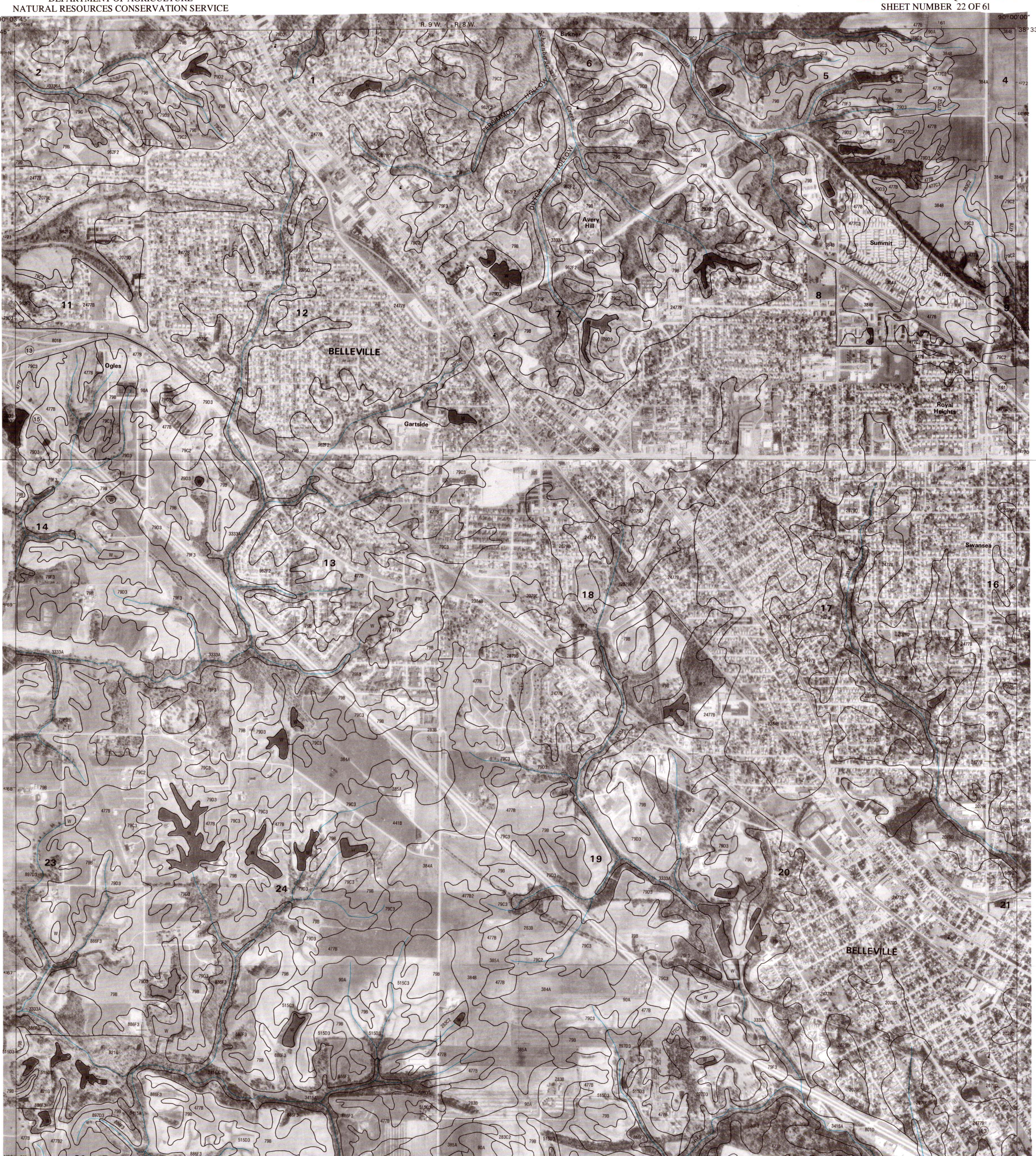
FRENCH VILLAGE SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 21 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
FRENCH VILLAGE SE QUADRANGLE
SHEET NUMBER 22 OF 61



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

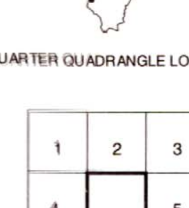
NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS



QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 FRENCH VILLAGE NW
2 FRENCH VILLAGE NE
3 O'FALLON NW
4 FRENCH VILLAGE SW
5 O'FALLON SW
6 MILLSTADT NW
7 MILLSTADT NE
8 FREEBURG NW

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FRENCH VILLAGE SE, ILLINOIS
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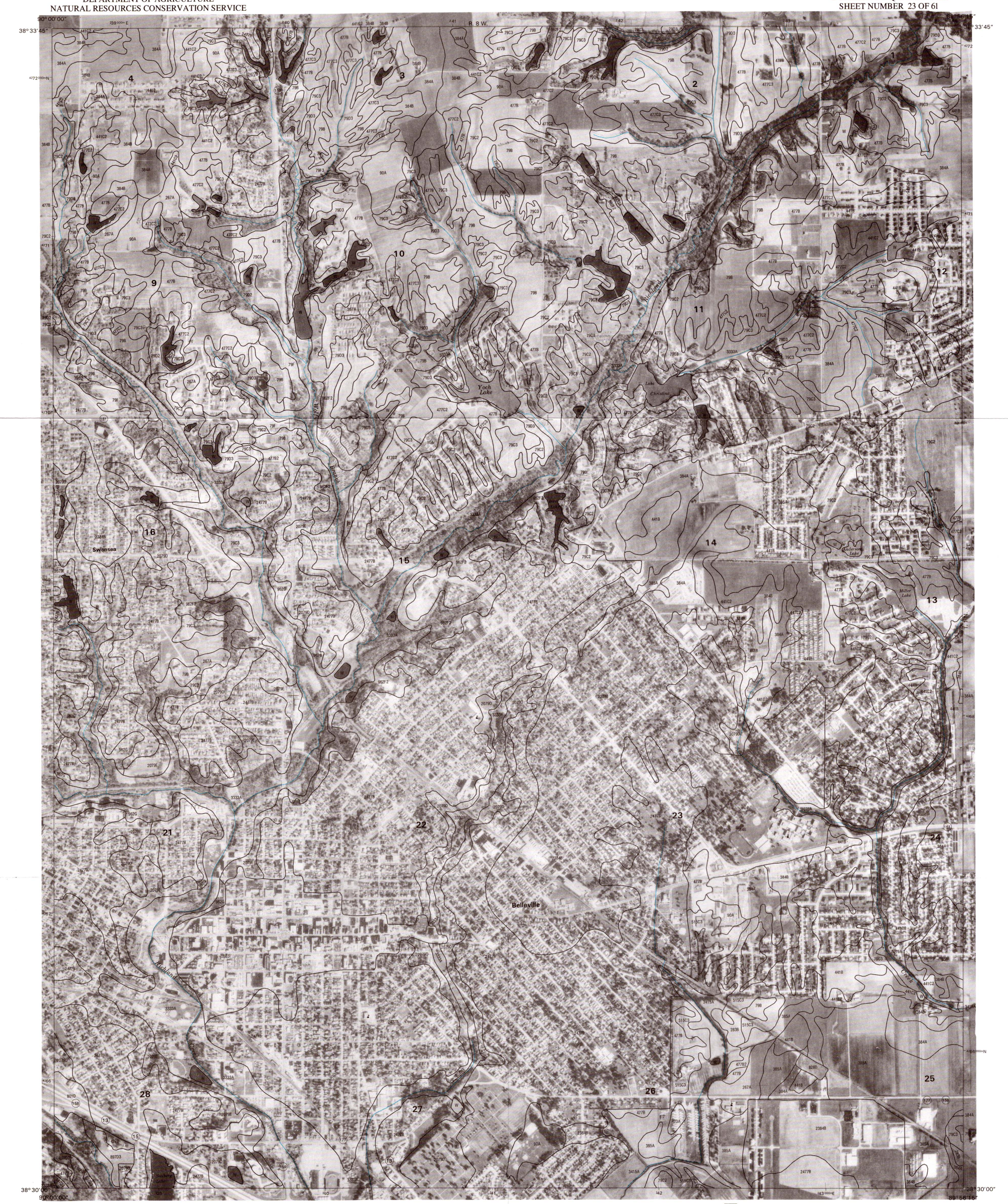
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
O'FALLON SW QUADRANGLE
SHEET NUMBER 23 OF 61



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 FRENCH VILLAGE NE
2 O'FALLON NW
3 O'FALLON NE
4 FRENCH VILLAGE SE
5 O'FALLON SE
6 MILLSTADT NE
7 FREEBURG NW
8 FREEBURG NE

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O'FALLON SW, ILLINOIS
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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
O'FALLON SE QUADRANGLE
SHEET NUMBER 24 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 O'FALLON NW
2 O'FALLON NE
3 LEBANON NW
4 O'FALLON SW
5 LEBANON SW
6 FREEBURG NW
7 FREEBURG NE
8 MASCOUTAH NW

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O'FALLON SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 24 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 O'FALLON NE
2 LEBANON NW
3 LEBANON NE
4 O'FALLON SE
5 LEBANON SE
6 FREEBURG NE
7 MASCOUTAH NW
8 MASCOUTAH NE

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LEBANON SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 25 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
LEBANON SE QUADRANGLE
SHEET NUMBER 26 OF 61

SCALE 1:12000

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 LEBANON NW
2 LEBANON NE
3 TRENTON NW
4 LEBANON SW
5 TRENTON SW
6 MASCOUTAH NW
7 MASCOUTAH NE
8 VENEDY NW

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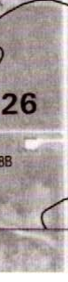
LEBANON SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 26 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
TRENTON SW QUADRANGLE
SHEET NUMBER 27 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



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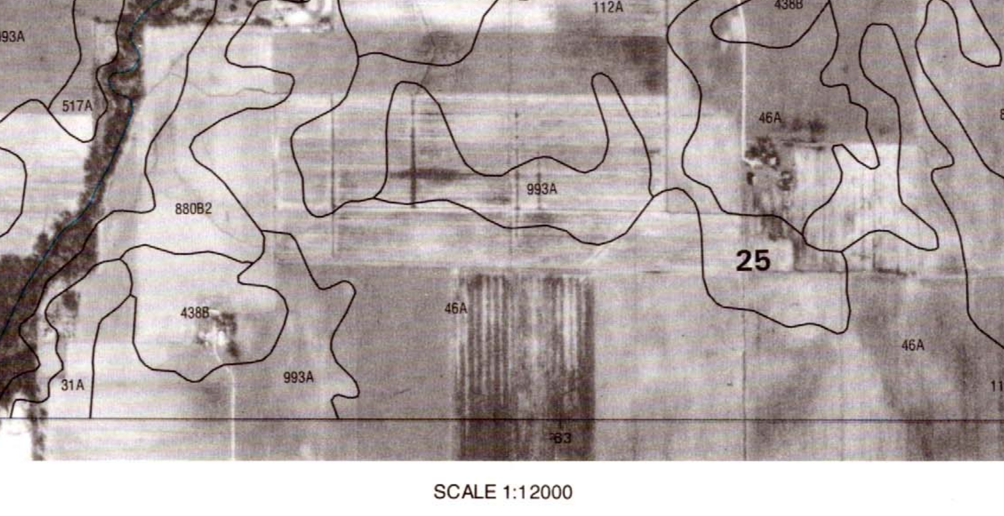
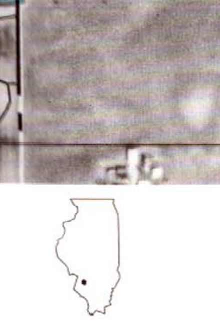


QUARTER QUADRANGLE LOCATION



1 LEBANON NE
2 TRENTON NW
3 TRENTON NE
4 LEBANON SE
5 TRENTON SE
6 MASCOUTAH NE
7 VENEDY NW
8 VENEDY NE

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TRENTON SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 27 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
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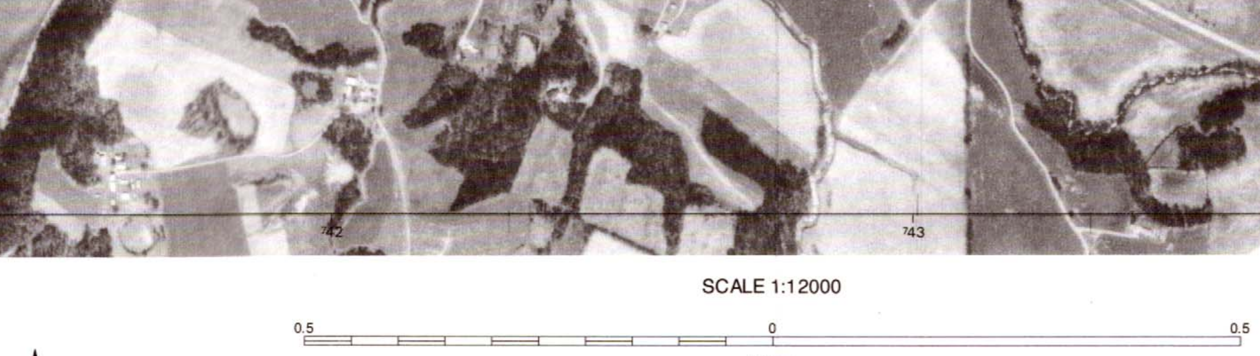
ST. CLAIR COUNTY, ILLINOIS
COLUMBIA NW QUADRANGLE
SHEET NUMBER 28 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

SCALE 1:12000



QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 WEBSTER GROVES SE
2 CAHOKIA SW
3 CAHOKIA SE
4 OAKVILLE NE
5 COLUMBIA NE
6 OAKVILLE SE
7 COLUMBIA SW
8 COLUMBIA SE

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COLUMBIA NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 28 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
COLUMBIA NE QUADRANGLE
SHEET NUMBER 29 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 CAHOKIA SW
2 CAHOKIA SE
3 FRENCH VILLAGE SW
4 COLUMBIA NW
5 MILLSTADT NW
6 COLUMBIA SW
7 COLUMBIA SE
8 MILLSTADT SW

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COLUMBIA NE, ILLINOIS
3.75 MINUTE SERIES
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UNITED STATES
DEPARTMENT OF AGRICULTURE
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ST. CLAIR COUNTY, ILLINOIS
MILLSTADT NW QUADRANGLE
SHEET NUMBER 30 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 CAHOKIA SE
2 FRENCH VILLAGE SW
3 FRENCH VILLAGE SE
4 COLUMBIA NE
5 MILLSTADT NE
6 COLUMBIA SE
7 MILLSTADT SW
8 MILLSTADT SE

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MILLSTADT NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 30 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
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ST. CLAIR COUNTY, ILLINOIS
MILLSTADT NE QUADRANGLE
SHEET NUMBER 31 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 FRENCH VILLAGE SW
2 FRENCH VILLAGE SE
3 O'FALLON SW
4 MILLSTADT NW
5 FREEBURG NW
6 MILLSTADT SW
7 MILLSTADT SE
8 FREEBURG SW

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MILLSTADT NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 31 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
FREEBURG NW QUADRANGLE
SHEET NUMBER 32 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 FRENCH VILLAGE SE
2 O'FALLON SW
3 O'FALLON SE
4 MILLSTADT NE
5 FREEBURG NE
6 MILLSTADT SE
7 FREEBURG SW
8 FREEBURG SE

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FREEBURG NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 32 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 O'FALLON SW
2 O'FALLON SE
3 LEBANON SW
4 FREEBURG NW
5 MASCOUTAH NW
6 FREEBURG SW
7 FREEBURG SE
8 MASCOUTAH SW

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FREEBURG NE, ILLINOIS
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SHEET NUMBER 33 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

MILES: 0.5 — 0 — 0.5

FEET: 500 — 0 — 500 — 1000 — 1500 — 2000 — 2500 — 3000 — 3500

KILOMETERS: 0.5 — 0 — 0.5

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 O'FALLON SE
2 LEBANON SW
3 LEBANON SE
4 FREEBURG NE
5 MASCOUTAH NE
6 FREEBURG SE
7 MASCOUTAH SW
8 MASCOUTAH SE

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MASCOUTAH NW, ILLINOIS
3.75 MINUTE SERIES

UNITED STATES
DEPARTMENT OF AGRICULTURE
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ST. CLAIR COUNTY, ILLINOIS
MASCOUTAH NE QUADRANGLE
SHEET NUMBER 35 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

MILES

FEET

KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 LEBANON SW
2 LEBANON SE
3 TRENTON SW
4 MASCOUTAH NW
5 VENEDY NW
6 MASCOUTAH SW
7 MASCOUTAH SE
8 VENEDY SW

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MASCOUTAH NE, ILLINOIS
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SHEET NUMBER 35 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 LEBANON SE
2 TRENTON SW
3 TRENTON SE
4 MASCOUTAH NE
5 VENEDY NE
6 MASCOUTAH SE
7 VENEDY SW
8 VENEDY SE

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VENEDY NW, ILLINOIS
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SHEET NUMBER 36 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 COLUMBIA NW
2 COLUMBIA NE
3 MILLSTADT NW
4 COLUMBIA SW
5 MILLSTADT SW
6 WATERLOO NW
7 WATERLOO NE
8 PADERBORN NW

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COLUMBIA SE, ILLINOIS
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SHEET NUMBER 37 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
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ST. CLAIR COUNTY, ILLINOIS
MILLSTADT SW QUADRANGLE
SHEET NUMBER 38 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 COLUMBIA NE
2 MILLSTADT NW
3 MILLSTADT NE
4 COLUMBIA SE
5 MILLSTADT SE
6 WATERLOO NE
7 PADERBORN NW
8 PADERBORN NE

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MILLSTADT SW, ILLINOIS
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UNITED STATES
DEPARTMENT OF AGRICULTURE
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ST. CLAIR COUNTY, ILLINOIS
MILLSTADT SE QUADRANGLE
SHEET NUMBER 39 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

MILES

FEET

KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 MILLSTADT NW
2 MILLSTADT NE
3 FREEBURG NW
4 MILLSTADT SW
5 FREEBURG SW
6 PADERBORN NW
7 PADERBORN NE
8 NEW ATHENS WEST NW

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MILLSTADT SE, ILLINOIS
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DEPARTMENT OF AGRICULTURE
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ST. CLAIR COUNTY, ILLINOIS
FREEBURG SW QUADRANGLE
SHEET NUMBER 40 OF 61

SCALE 1:12000

MILES

FEET

KILOMETERS

NORTH

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 MILLSTADT NE
2 FREEBURG NW
3 FREEBURG NE
4 MILLSTADT SE
5 FREEBURG SE
6 PADERBORN NE
7 NEW ATHENS WEST NW
8 NEW ATHENS WEST NE

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FREEBURG SW, ILLINOIS
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UNITED STATES
DEPARTMENT OF AGRICULTURE
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ST. CLAIR COUNTY, ILLINOIS
FREEBURG SE QUADRANGLE
SHEET NUMBER 41 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

SCALE 1:12000

MILES

FEET

KILOMETERS

QUARTER QUADRANGLE LOCATION

FREEBURG SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 41 OF 61

1 FREEBURG NW
2 FREEBURG NE
3 MASCOUTAH NW
4 FREEBURG SW
5 MASCOUTAH SW
6 NEW ATHENS NW
7 NEW ATHENS WEST NE
8 NEW ATHENS EAST NW

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UNITED STATES
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This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 FREEBURG NE
2 MASCOUTAH NW
3 MASCOUTAH NE
4 FREEBURG SE
5 MASCOUTAH SE
6 NEW ATHENS WEST NE
7 NEW ATHENS EAST NW
8 NEW ATHENS EAST NE

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MASCOUTAH SW, ILLINOIS
3.75 MINUTE SERIES

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

MILES

FEET

KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 MASCOUTAH NW
2 MASCOUTAH NE
3 VENEDY NW
4 MASCOUTAH SW
5 VENEDY SW
6 NEW ATHENS EAST NW
7 NEW ATHENS EAST NE
8 SAINT LIBORY NW

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MASCOUTAH SE, ILLINOIS

3.75 MINUTE SERIES
SHEET NUMBER 43 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

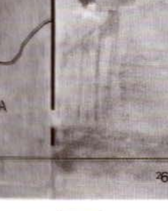
NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS



QUARTER QUADRANGLE LOCATION

VENEDY SW, ILLINOIS

3.75 MINUTE SERIES
SHEET NUMBER 44 OF 61

1	2	3
4		5
6	7	8

1 MASCOUTAH NE
2 VENEDY NW
3 VENEDY NE
4 MASCOUTAH SE
5 VENEDY SE
6 NEW ATHENS EAST NE
7 SAINT LIBORY NW
8 SAINT LIBORY NE

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DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
PADERBORN NW QUADRANGLE
SHEET NUMBER 45 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

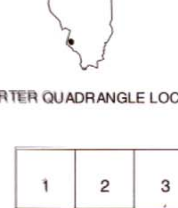
NORTH

SCALE 1:12000

MILES: 0.5 0 0.5

FEET: 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS: 0.5 0 0.5



QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 COLUMBIA SE
2 MILLSTADT SW
3 MILLSTADT SE
4 WATERLOO NE
5 PADERBORN NE
6 WATERLOO SE
7 PADERBORN SW
8 PADERBORN SE

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PADERBORN NW, ILLINOIS
3.75 MINUTE SERIES
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UNITED STATES
DEPARTMENT OF AGRICULTURE
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This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 MILLSTADT SW
2 MILLSTADT SE
3 FREEBURG SW
4 PADERBORN NW
5 NEW ATHENS WEST NW
6 PADERBORN SW
7 PADERBORN SE
8 NEW ATHENS WEST SW

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PADERBORN NE, ILLINOIS
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SHEET NUMBER 46 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
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ST. CLAIR COUNTY, ILLINOIS
NEW ATHENS WEST NW QUADRANGLE
SHEET NUMBER 47 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

MILES

FEET

KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3	1 MILLSTADT SE 2 FREEBURG SW 3 FREEBURG SE
4		5	4 PADERBORN NE 5 NEW ATHENS WEST NE 6 PADERBORN SE
6	7	8	7 NEW ATHENS WEST SW 8 NEW ATHENS WEST SE

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NEW ATHENS WEST NW, ILLINOIS
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DEPARTMENT OF AGRICULTURE
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ST. CLAIR COUNTY, ILLINOIS
NEW ATHENS WEST NE QUADRANGLE
SHEET NUMBER 48 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 FREEBURG SW
2 FREEBURG SE
3 MASCOUTAH SW
4 NEW ATHENS WEST NW
5 NEW ATHENS EAST NW
6 NEW ATHENS WEST SW
7 NEW ATHENS WEST SE
8 NEW ATHENS EAST SW

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NEW ATHENS WEST NE, ILLINOIS
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This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 FREEBURG SE
2 MASCOUTAH SW
3 MASCOUTAH SE
4 NEW ATHENS WEST NE
5 NEW ATHENS EAST NE
6 NEW ATHENS WEST SE
7 NEW ATHENS EAST SW
8 NEW ATHENS EAST SE

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NEW ATHENS EAST NW, ILLINOIS
3.75 MINUTE SERIES
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This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

NEW ATHENS EAST NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 50 OF 61

1	2	3
4		5
6	7	8

1 MASCOUTAH SW
2 MASCOUTAH SE
3 VENEDY SW
4 NEW ATHENS EAST NW
5 SAINT LIBORY NW
6 NEW ATHENS EAST SW
7 NEW ATHENS EAST SE
8 SAINT LIBORY SW

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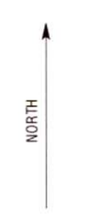
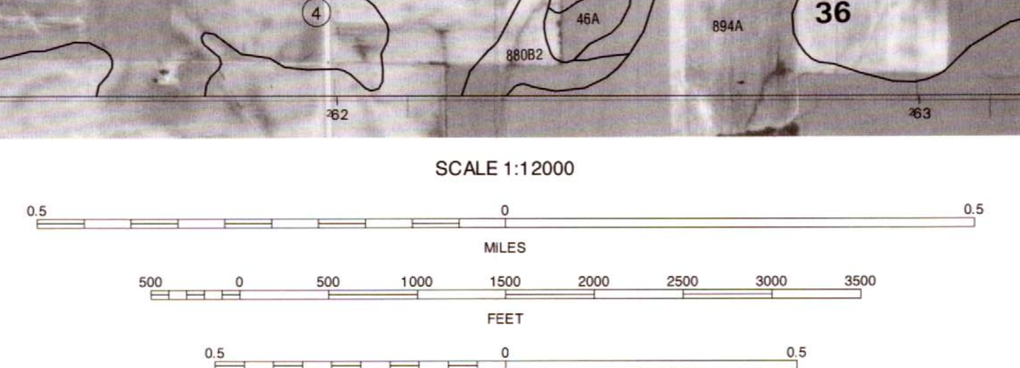
ST. CLAIR COUNTY, ILLINOIS
SAINT LIBORY NW QUADRANGLE
SHEET NUMBER 51 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



SCALE 1:12000



QUARTER QUADRANGLE LOCATION

1 MASCOUTAH SE
2 VENEDY SW
3 VENEDY SE
4 NEW ATHENS EAST NE
5 SAINT LIBORY NE
6 NEW ATHENS EAST SE
7 SAINT LIBORY SW
8 SAINT LIBORY SE

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SAINT LIBORY NW, ILLINOIS

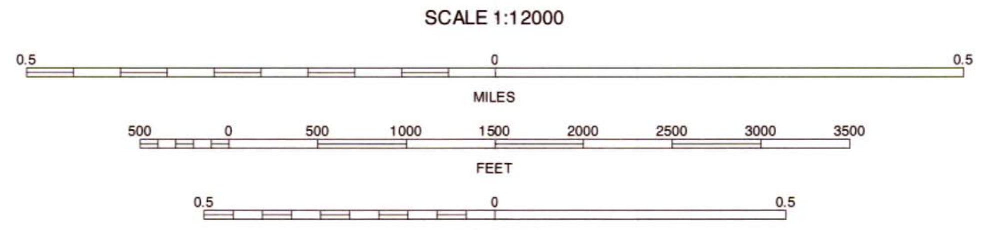
3.75 MINUTE SERIES
SHEET NUMBER 51 OF 61

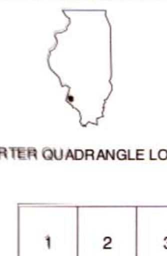
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

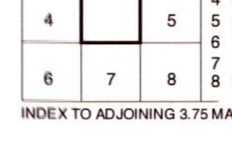
NORTH

SCALE 1:12000





QUARTER QUADRANGLE LOCATION



1 PADERBORN NW
2 PADERBORN NE
3 NEW ATHENS WEST NW
4 PADERBORN SW
5 NEW ATHENS WEST SW
6 AMES NW
7 AMES NE
8 RED BUD NW

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PADERBORN SE, ILLINOIS

3.75 MINUTE SERIES
SHEET NUMBER 52 OF 61
August 02, 1999

UNITED STATES
DEPARTMENT OF AGRICULTURE
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ST. CLAIR COUNTY, ILLINOIS
NEW ATHENS WEST SW QUADRANGLE
SHEET NUMBER 53 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

MILES

FEET

KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 PADERBORN NE
2 NEW ATHENS WEST NW
3 NEW ATHENS WEST NE
4 PADERBORN SE
5 NEW ATHENS WEST SE
6 AMES NE
7 RED BUD NW
8 RED BUD NE

INDEX TO ADJOINING 3.75 MAPS

NEW ATHENS WEST SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 53 OF 61
July 07, 1999

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

NEW ATHENS WEST SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 54 OF 61

1	2	3
4		5
6	7	8

1 NEW ATHENS WEST NW
2 NEW ATHENS WEST NE
3 NEW ATHENS EAST NW
4 NEW ATHENS WEST SW
5 NEW ATHENS EAST SW
6 RED BUD NW
7 RED BUD NE
8 BALDWIN NW

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
NEW ATHENS EAST SW QUADRANGLE
SHEET NUMBER 55 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 NEW ATHENS WEST NE
2 NEW ATHENS EAST NW
3 NEW ATHENS EAST NE
4 NEW ATHENS WEST SE
5 NEW ATHENS EAST SE
6 RED BUD NE
7 BALDWIN NW
8 BALDWIN NE

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NEW ATHENS EAST SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 55 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
NEW ATHENS EAST SE QUADRANGLE
SHEET NUMBER 56 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 NEW ATHENS EAST NW
2 NEW ATHENS EAST NE
3 SAINT LIBORY NW
4 NEW ATHENS EAST SW
5 SAINT LIBORY SW
6 BALDWIN NW
7 BALDWIN NE
8 TILDEN NW

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NEW ATHENS EAST SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 56 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
SAINT LIBORY SW QUADRANGLE
SHEET NUMBER 57 OF 61

SCALE 1:12000

MILES

FEET

KILOMETERS

NORTH

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 NEW ATHENS EAST NE
2 SAINT LIBORY NW
3 SAINT LIBORY NE
4 NEW ATHENS EAST SE
5 SAINT LIBORY SE
6 BALDWIN NE
7 TILDEN NW
8 TILDEN NE

INDEX TO ADJOINING 3.75 MAPS

SAINT LIBORY SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 57 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
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ST. CLAIR COUNTY, ILLINOIS
RED BUD NE QUADRANGLE
SHEET NUMBER 58 OF 61

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

NORTH

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 NEW ATHENS WEST SW
2 NEW ATHENS WEST SE
3 NEW ATHENS EAST SW
4 RED BUD NW
5 BALDWIN NW
6 RED BUD SW
7 RED BUD SE
8 BALDWIN SW

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RED BUD NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 58 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ST. CLAIR COUNTY, ILLINOIS
BALDWIN NW QUADRANGLE
SHEET NUMBER 59 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 NEW ATHENS WEST SE
2 NEW ATHENS EAST SW
3 NEW ATHENS EAST SE
4 RED BUD NE
5 BALDWIN NE
6 RED BUD SE
7 BALDWIN SW
8 BALDWIN SE

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BALDWIN NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 59 OF 61

UNITED STATES
DEPARTMENT OF AGRICULTURE
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ST. CLAIR COUNTY, ILLINOIS
BALDWIN NE QUADRANGLE
SHEET NUMBER 60 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 NEW ATHENS EAST SW
2 NEW ATHENS EAST SE
3 SAINT LIBORY SW
4 BALDWIN NW
5 TILDEN NW
6 BALDWIN SW
7 BALDWIN SE
8 TILDEN SW

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BALDWIN NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 60 OF 61

UNITED STATES
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ST. CLAIR COUNTY, ILLINOIS
TILDEN NW QUADRANGLE
SHEET NUMBER 61 OF 61

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from (1988) aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

QUARTER QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 NEW ATHENS EAST SE
2 SAINT LIBORY SW
3 SAINT LIBORY SE
4 BALDWIN NE
5 TILDEN NE
6 BALDWIN SE
7 TILDEN SW
8 TILDEN SE

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TILDEN NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 61 OF 61